

TECHNICAL MANUAL
MAINTENANCE
DIRECT AND GENERAL SUPPORT LEVEL
GENERATOR ASSEMBLY

PRESTOLITE MODEL AMA-5102UT,
NSN 2920-00-909-2483

LEECE-NEVILLE MODEL 3002AC,
NSN 2920-00-909-2483

LEECE-NEVILLE MODEL 3002AD,
NSN 2920-00-909-2483

LEECE-NEVILLE MODEL 3002AE,
NSN 2920-00-909-2483

LEECE-NEVILLE MODEL 5504AA,
NSN 2920-00-475-1446

LEECE-NEVILLE MODEL 5504AB,
NSN 2920-00-475-1446

LEECE-NEVILLE MODEL 2184AC,
NSN 2920-00-782-1955

LEECE-NEVILLE MODEL 5300GP,
NSN 2920-00-818-8635

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| Chapter 1 General Maintenance Information |
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| Chapter 2 Equipment Group Maintenance |
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| Appendix A References |
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NOTE:

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| THE STYLE OF THIS TM IS EXPERIMENTAL. IT IS BEING TRIED BY THE ARMY ONLY ON A LIMITED BASIS |
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WARNING

Dry cleaning solvent is flammable. Do not use near an open flame. Keep a fire extinguisher nearby when solvent is used. Use only in well-ventilated places. Failure to do this may result in injury to personnel and damage to equipment.

Eye shields must be worn when using compressed air. Eye injury can occur if eye shields are not used.

Do not open high voltage compartment door unless main circuit breaker is turned off. Electrical current can cause injury to personnel and damage to equipment.

*** TM 9-2920-225-34
T.O. 38X67-22**

**TECHNICAL MANUAL
NO. 9-2920-225-34
TECHNICAL ORDER
NO. 38X6-7-22**

**DEPARTMENTS OF THE ARMY
AND
THE AIR FORCE
Washington, DC, 20 February 1981**

**TECHNICAL MANUAL
MAINTENANCE
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LEECE-NEVILLE MODEL 5300GP, NSN 2920-00-818-8635

REPORTING OF ERRORS AND RECOMMENDING IMPROVEMENTS

You can help improve this manual. If you find any mistakes or if you know of a way to improve the procedure, please let us know. Mail your letter, DA Form 2028 (Recommended Changes to Publications and Blank Forms), or DA Form 2028-2 located in the back of this manual direct to: Commander, US Army Tank-Automotive Command, ATTN: DRSTA-MB, Warren, Michigan 48090. A reply will be furnished to you.

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***This manual supersedes TM 9-2920-225-34 dated 2 November 1973.**

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CHAPTER 1

GENERAL MAINTENANCE INFORMATION

1-1. SCOPE .

a. This technical manual gives instructions for direct support and general support maintenance of Leece-Neville generator models 3002AC, 3002AD, 3002AE, 5504AA, 5004AB, 2184AC and 5300GP and Prestolite generator model AMA-5102UT. This manual gives procedures for disassembly, cleaning, inspection, repair, assembly, testing and adjustment as directed by the maintenance allocation chart. Figure 1-1 shows the different models of generators that you will be working on.

b. Appendix A gives a list of current and applicable references covered in this manual.

c. Refer to TM 9-2920-225-34P for a listing of parts and special tools for the models of generators covered in this manual.

1-2. GENERAL MAINTENANCE

a. Chapter 2 gives instructions for disassembly of the generator. However, the generator should not be taken apart beyond the point needed to repair or replace parts found damaged during inspection. You must use your judgment in following the disassembly procedures so you do only those operations that are necessary.

b. Troubleshooting a fault within a generator is done as part of the repair procedures; therefore, it should be noted that a component which is damaged or not working will be found as part of inspection, repair, and test procedures given in this manual. Corrective action will be repair or replacement as authorized at this level of maintenance.

1-3. CLEANING .

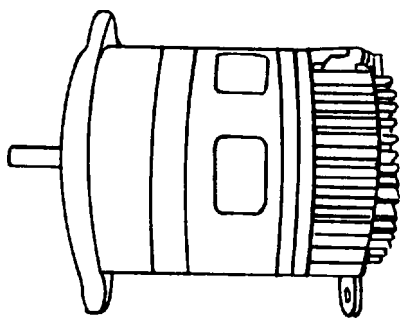
WARNING

Dry cleaning solvent is flammable. Do not use near an open flame. Keep a fire extinguisher nearby when solvent is used. Use only in well-ventilated places. Failure to do this may result in injury to personnel and damage to equipment.

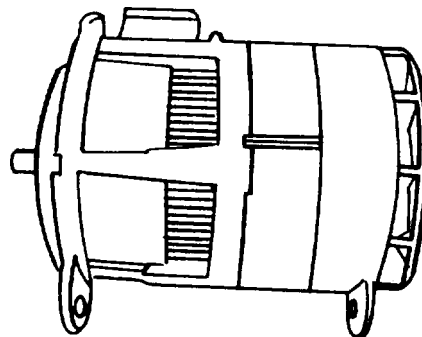
Eye shields must be worn when using compressed air. Eye injury can occur if eye shields are not used.

a. Before taking generator apart, clean exterior with dry cleaning solvent. Dry thoroughly with compressed air.

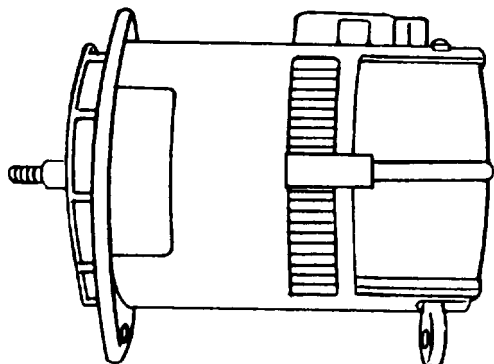
b. Except where special cleaning procedures are given for a component or part, clean all components and parts with dry cleaning solvent. Dry thoroughly with compressed air.



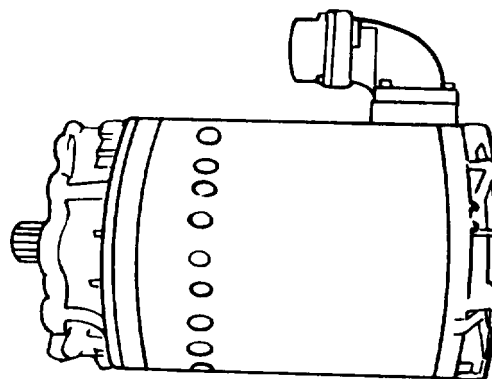
MODEL AMA-5102UT



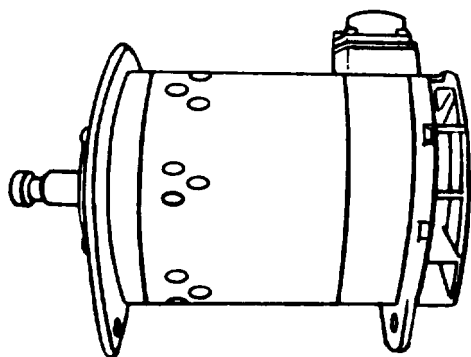
MODEL 3002AC



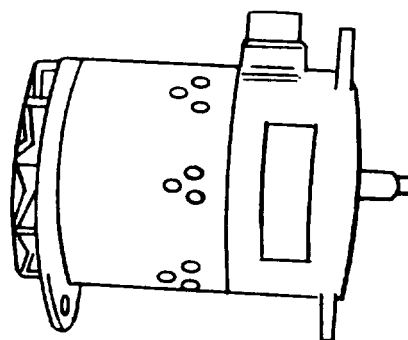
MODEL L 3002AD AND 3002AE



MODELS 5504AA AND 5504AB



MODEL 5300GP



MODEL 2184AC

TA 118949

Figure 1-1. Alternating Current Engine Generator Identification

1-4. PAINTING. Refer to TM 43-0139 for painting instructions for field use of equipment covered in this manual.

1-5. TORQUE VALUES . Critical torque values for a particular component are given in the maintenance procedures in chapter 2. When torque values are not given, bolts, screws, and nuts are to be tightened as given in table 1-1.

1-6. SPECIAL TOOLS AND EQUIPMENT . Special tools and equipment are provided to make it easier to do particular maintenance tasks and to keep the equipment in good repair. Table 1-2 lists the special tools and equipment and gives a reference to the maintenance paragraph where they are used and what they are used for.

1-7. REPAIR . Generator repair is limited only to removal, replacement, and repair of items covered in this manual. Whenever the armature, field coil or housing is damaged, the generator is non-repairable.

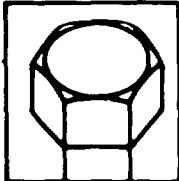
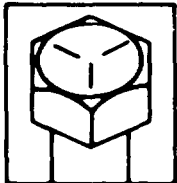
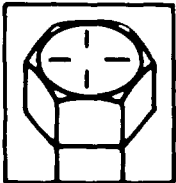
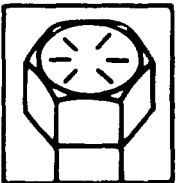

1-8. FORMS AND RECORDS. Maintenance forms, records, and reports which are to be used by maintenance personnel *at* all levels are listed in and prescribed by TM 38-750.

1-9. EQUIPMENT IMPROVEMENT REPORT AND MAINTENANCE DIGEST (EIR MD) AND EQUIPMENT IMPROVEMENT REPORT AND MAINTENANCE SUMMARY (EIR MS). The quarterly Equipment Improvement Report and Maintenance Digest, TB 43-0001-39 series, contains valuable field information on the equipment covered in this manual. The information in the TB 43-0001-39 series is compiled from some of the Equipment Improvement Reports that you prepared on the equipment covered in this manual. Many of these articles result from comments, suggestions, and improvement recommendations that you submitted to the EIR program. The TB 43-0001-39 series contains information on equipment improvements, minor alterations, proposed Modification Work Orders (MWO's) , warranties (if applicable) , actions taken on some of your DA Form 2028's (Recommended Changes to Publications) , and advance information on proposed changes that may affect this manual. In addition, the more maintenance significant articles, including minor alterations, field-fixes, etc, that have a more permanent and continuing need in the field are republished in the Equipment Improvement Report and Maintenance Summary (EIR MS) for TACOM Equipment (TM 43-0143). Refer to both of these publications (TB 43-0001-39 series and TM 43-0143) periodically, especially the TB 43-0001-39 series, for the most current and authoritative information on your equipment. The information will help you in doing your job better and will help in keeping you advised of the latest changes to this manual. Also refer to DA Pam 310-4, Index of Technical Publications, and Appendix A, References, of this manual.

1-10. REPORTING IMPROVEMENT RECOMMENDATIONS . If your equipment needs improvement, let us know. Send us an EIR. You, the user, are the only one who can tell us what you don't like about your equipment. Let us know why you don't like the design. Tell us why a procedure is hard to perform. Put it on an SF 368 (Quality Deficiency Report). Mail it to us at: Commander, U.S. Army Tank-Automotive Command, ATTN: DRSTA-MT, Warren, Michigan 48090. We'll send you a reply.

1-11. METRIC SYSTEM. The equipment/system described herein is nonmetric and does not require metric common or special tools. Therefore, metric units are not supplied. Tactical instructions, for sake of clarity, will also remain nonmetric.

Table 1-1. Standard Torque Specifications

| USAGE | MUCH USED | MUCH USED | USED AT TIMES | USED AT TIMES | | | | |
|---|---|---|--|---|------------------------|-----------|------------------------|------------|
| CAPSCREW DIAMETER AND MINIMUM TENSILE STRENGTH PSI [KG/SQ CM] | To 1/2-69,000 (4850.7000) | To 3/4-120,000 (8436.0000) | To 5/8- 140,000 (9842.0000) | 150,000 (10545-0000) | | | | |
| | To 3/4-64,000 (4499.2000) | To 1 - 115,000 (8084.5000) | To 3/4-133,000 (9349.9000) | | | | | |
| | To 1 -55,000 [3866.5000] | | | | | | | |
| QUALITY OF MATERIAL | INDETERMINATE | MINIMUM COMMERCIAL | MEDIUM COMMERCIAL | BEST COMMERCIAL | | | | |
| SAE GRADE NUMBER | 1 or 2 | 5 | 6 or 7 | 8 | | | | |
| CAPSCREW HEAD MARKINGS | | | | | | | | |
| Manufacturer's marks may vary. These are all SAE Grade 5 (3 line) |  |  |  |  | | | | |
|  | | | | | | | | |
| CAPSCREW BODY SIZE (INCHES)-(THREAD) | TORQUE FT-LB [KG M] | | TORQUE FT-LB [KG M] | | TORQUE FT-LB [KG M] | | TORQUE FT-LB [KG M] | |
| 1/4-20 | 5 | [0.6915] | 8 | [1.1064] | 10 | [1.3830] | 12 | [1.6596] |
| - 28 | 6 | [0.8298] | 10 | [1.3830] | | | 14 | [1.9362] |
| 5/16-18 | 11 | [1.5213] | 17 | [2.3511] | 19 | [2.6277] | 24 | [3.3192] |
| - 24 | 13 | [1.7979] | 19 | [2.6277] | | | 27 | [3.7341] |
| 3/8-16 | 18 | [2.4894] | 31 | [4.2873] | 34 | [4.7022] | 44 | [6.0852] |
| - 24 | 20 | [2.7660] | 35 | [4.8405] | | | 49 | [6.7767] |
| 7/16-14 | 28 | [3.8132] | 49 | [6.7767] | 55 | [7.6065] | 70 | [9.6810] |
| - 20 | 30 | [4.1490] | 55 | [7.6065] | | | 78 | [10.7874] |
| 1/2-13 | 39 | [5.3937] | 75 | [10.3725] | 85 | [11.7555] | 105 | [14.5215] |
| - 20 | 41 | [5.6703] | 85 | [11.7555] | | | 120 | [16.5960] |
| 9/16-12 | 51 | [7.0533] | 110 | [15.2130] | 120 | [16.5960] | 155 | [21.4365] |
| - 18 | 55 | [7.6065] | 120 | [16.5960] | | | 170 | [23.5110] |
| 5/8-11 | 83 | [11.4789] | 150 | [20.7450] | 167 | [23.0961] | 210 | [29.0430] |
| - 18 | 95 | [13.1385] | 170 | [23.5110] | | | 240 | [33.1920] |
| 3/4-10 | 105 | [14.5215] | 270 | [37.3410] | 280 | [38.7240] | 375 | [51.8625] |
| - 16 | 115 | [15.9045] | 295 | [40.7985] | | | 420 | [58.0860] |
| 7/8-9 | 160 | [22.1280] | 395 | [54.6285] | 440 | [60.8520] | 605 | [83.6715] |
| - 14 | 175 | [24.2025] | 435 | [60.1605] | | | 675 | [93.3525] |
| 1-8 | 235 | [32.5005] | 590 | [81.5970] | 660 | [91.2780] | 910 | [125.8530] |
| - 14 | 250 | [34.5750] | 660 | [91.2780] | | | 990 | [136.9170] |

1. Always use the torque values listed above when specific specifications are not available

Note: Do not use above values in place of those specified in the engine groups of this manual, special attention should be observed in case of SAE Grade 6, 7 and 8 capscrews.

- The above is based on use of clean and dry threads
- Reduce torque by 10% when engine oil is used as a lubricant
- Reduce torque by 20% if new plated capscrews are used

Caution: Capscrews threaded into aluminum may require reductions in torque of 30% or more, unless inserts are used.

TA 113439

Table 1-2. Special Tools and Equipment

| Item | Part No. | National Stock No. | Reference Paragraph | Use |
|--|----------|--------------------|----------------------|---|
| TEST STAND : (Automotive Generator, Alternator and Starter) | AGT-9 | 4910-00-767-0218 | 2-23 2-24 2-25 | Used to check the operation and output of the generator after it has been repaired. |

1-12. DIFFERENCES BETWEEN MODELS . Refer to table 1-4 for differences between generator models covered in this manual.

1-13. DESCRIPTION AND DATA.

a. Basic Generator. The engine generators you will read about in this manual produce 28-volt, 3-phase alternating current. These generators are self-cooled with rotor shafts on either ball or roller bearings. Some models are belt driven. Other models have a flexible direct drive coupling.

b. Internally Rectified Generators. Generator models AMA-5102UT, 3002AC, 3002AD, 3002AE and 2184AC have internal rectifiers. These rectifiers change the alternating current to direct current before it leaves the generator.

c. Internally Regulated Generators. Generator models AMA-5102UT, 3002AC, 3002AD, and 3002AE besides having internal rectification, also have an internally mounted voltage regulator. This device controls the output of the generator and does away with the need for an external regulator.

d. Tabulated Data. Refer to table 1-3 for tabulated data on each model generator and regulator covered in this manual.

Table 1-3. Tabulated Data

| Item | Generator Model No. | | | | | | |
|---------------------------|---------------------|---------------|---------------|---------------|-------------------|---------------|---------------|
| | AMA-5102UT | 3002AC | 3002AD | 3002AE | 5504AA and 5504AB | 5300GP | 2184AC |
| Group | 1 | 2 | 3 | 3 | 4 | 4 | 5 |
| Federal Stock No. | 2920-909-2483 | 2920-909-2483 | 2920-909-2483 | 2920-909-2483 | 2920-475-1446 | 2920-818-8635 | 2920-782-1955 |
| Ord Part No. | 10929868 | 10929868 | 10929868 | 10929868 | 10922191 | 7954720 | 10947517 |
| | (19207) | (19207) | (19207) | (19207) | (19207) | (19207) | (19207) |
| Rated volts | 28 | 28 | 28 | 28 | 28 | 28 | 28 |
| Rated amperes | 60 | 60 | 60 | 60 | 100 | 100 | 100 |
| Speed range (rpm) | 2000 to 8000 | 2000 to 8000 | 2000 to 8000 | 2000 to 8000 | 2000 to 8000 | 2000 to 8000 | 2000 to 8000 |
| Rotation | Reversible | Reversible | Reversible | Reversible | Reversible | Reversible | Reversible |
| Internal rectification | Yes | Yes | Yes | Yes | No | No | Yes |
| Internal regulation | Yes | Yes | Yes | Yes | No | No | No |
| New Brush length | 1/2 | 1/2 | 1/2 | 1/2 | 5/8 | 5/8 | 1/2 |
| Minimum worn brush length | 1/4 | 1/4 | 1/4 | 1/4 | 5/16 | 5/16 | 1/4 |

Table 1-4. Differences Between Models

| Model No. | Group | Type of drive | Fan drive | Type and direction of connector | Internal rectifier | Internal regulator |
|------------|-------|---------------------------|------------------|--|--------------------|--------------------|
| AMA-5102UT | 1 | Belt | Pressed on shaft | Terminals, mounted on top of generator | Yes | Yes |
| 3002AC | 2 | Belt | Keyed hub | Terminals, mounted on top of generator | Yes | Yes |
| 3002AD | 3 | Belt | Keyed hub | Terminals, mounted on top of generator | Yes | Yes |
| 3002AE | 3 | Belt | Keyed hub | Terminals, mounted on top of generator | Yes | Yes |
| 5504AA | 4 | Direct, flexible coupling | Friction clutch | Elbow, facing drive end | No | No |
| 5504AB | 4 | Direct, flexible coupling | Friction clutch | Elbow, facing drive end | No | No |
| 5300GP | 4 | Belt | Keyed hub | Straight, extending upward | No | No |
| 2184AC | 5 | Belt | Keyed hub | Straight, extending upward | Yes | No |

CHAPTER 2

EQUIPMENT GROUP MAINTENANCE

Section I. SCOPE

2-1. EQUIPMENT ITEMS COVERED. Maintenance procedures for generator models AMA- 5102UT, 3002AC, 3002AD, 3002AE, 5504AA, 5504AB, 5300GP, and 2184AC, as authorized by the maintenance allocation chart are given in this chapter.

2-2. EQUIPMENT ITEMS NOT COVERED. All equipment items are covered except for regulator model 3392R12P.

Section II. PRESTOLITE MODEL GENERATOR AMA5102UT

2-3. REGULATOR ASSEMBLY .

TOOLS: No special tools required

SUPPLIES : Regulator-to-housing preformed packing

PERSONNEL: One

EQUIPMENT CONDITION: Generator removed from vehicle, pulley removed from generator.

a. Preliminary Procedure. Clean generator before disassembly. Refer to para 1-3.

b. Removal.

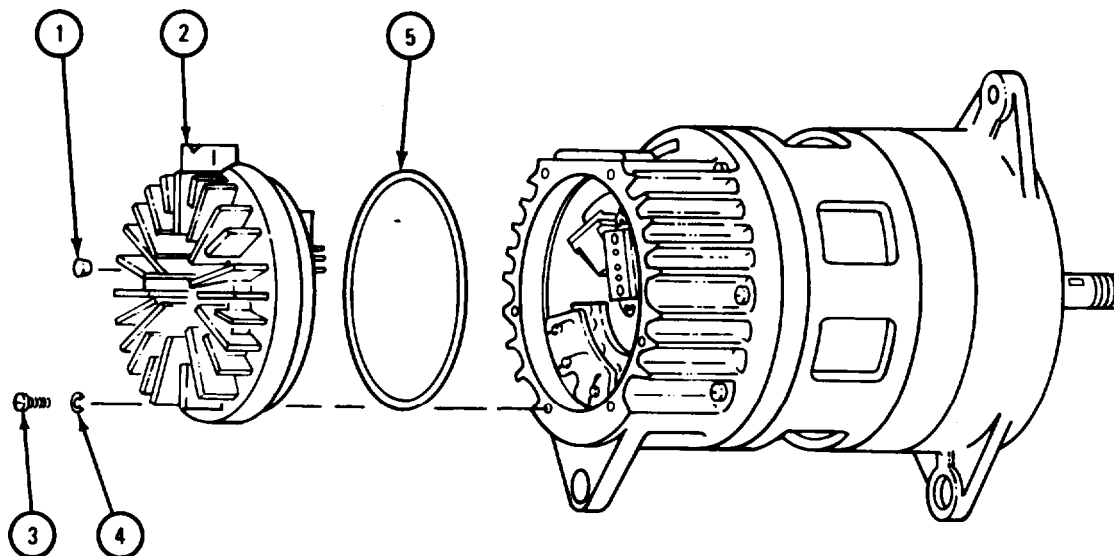
FRAME 1
I

1. Take out output switch access plug (1) from regulator (2).
2. Take out six screws (3) and lockwashers (4).
3. Take off regulator (2) and preformed packing (5).

NOTE

Do not take apart regulator (2).

END OF TASK



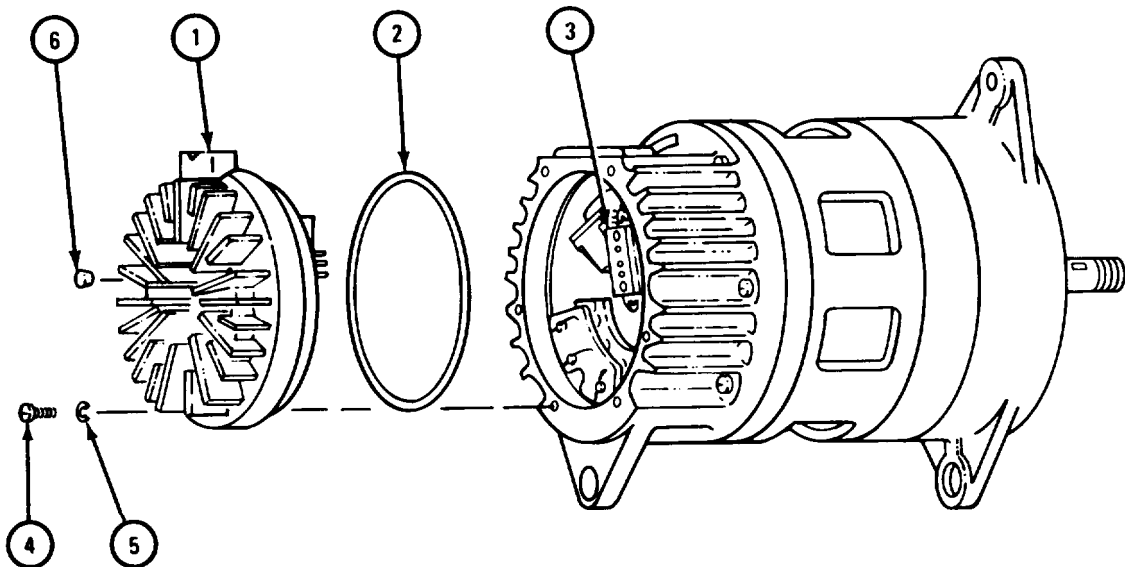
TA 103500

c. Replacement.

FRAME 1

1. Put on regulator (1) and preformed packing (2), with three Pins on regulator in three holes in socket assembly (3).
2. Put in six screws (4) and lockwashers (5) and tighten screws to 15 to 20 pound-inches.
2. Put in access plug (6) and tighten plug to 30 to 35 pound-inches.

END OF TASK



TA103501

2-4. END HOUSING AND INSULATOR.

TOOLS: No special tools required

SUPPLIES : Packing
Tags
Lead assembly preformed packing
Solder
Sealant MIL-A-46106

PERSONNEL: One

EQUIPMENT CONDITION : Generator removed from vehicle, pulley removed from generator.

a. Preliminary Procedures.

(1) Clean generator before disassembly. Refer to para 1-3.

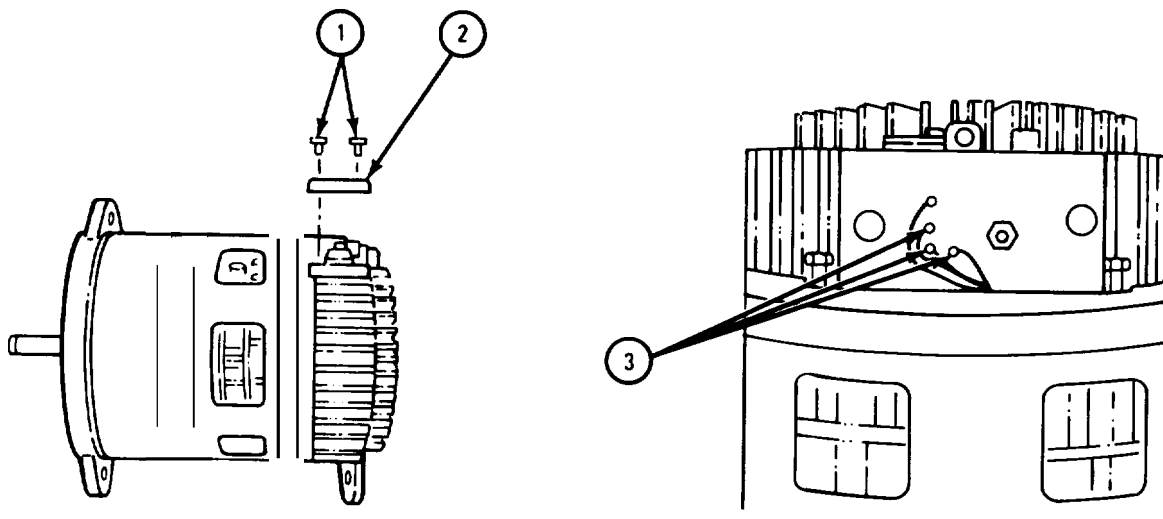
(2) Remove regulator assembly. Refer to para 2-3.

b. Removal.

FRAME 1

I

1. Take out two screws (1) and take off cover (2).
 2. Scrape away sealant. Tag and unsolder three stator lead connections (3).
- GO TO FRAME 2



TA103502

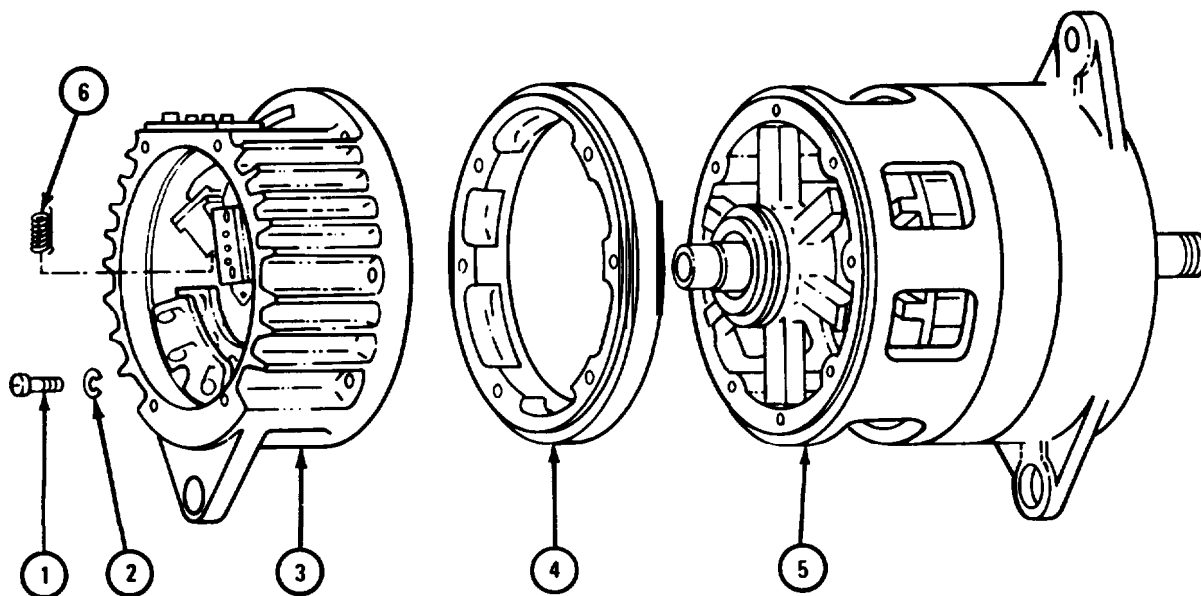
FRAME 2

1. Take out six screws (1) and lockwashers (2).
2. Scribe a mark across end housing (3) , insulator (4) , and intermediate housing (5) .
3. Take end housing (3) and insulator (4) from intermediate housing (5) .

NOTE

Brush springs (6) will fall out. Do not lose them.

END OF TASK



TA103503

c. Disassemble.

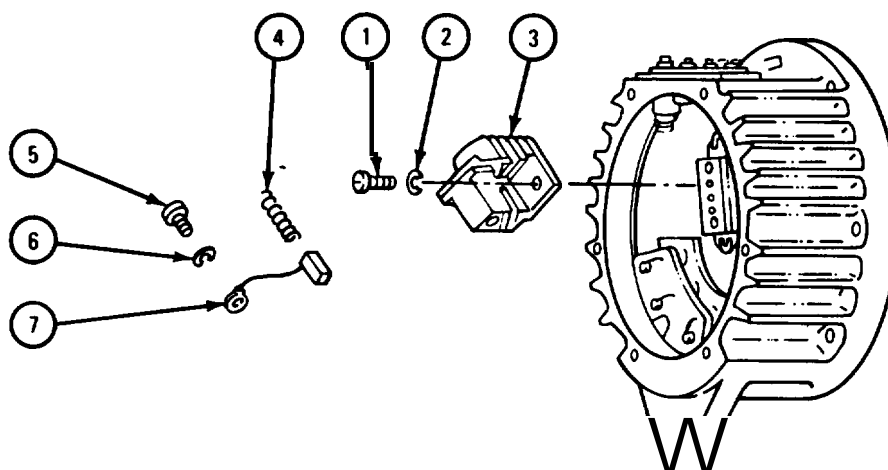
NOTE

Test rectifiers before starting disassembly.
Refer to para 2-4e.

FRAME 1

1. Take out three screws (1) and lockwashers (2).
2. Take out brush holder (3) and springs (4).
3. Take out two screws (5), lockwashers (6), and brushes (7).

GO TO FRAME 2

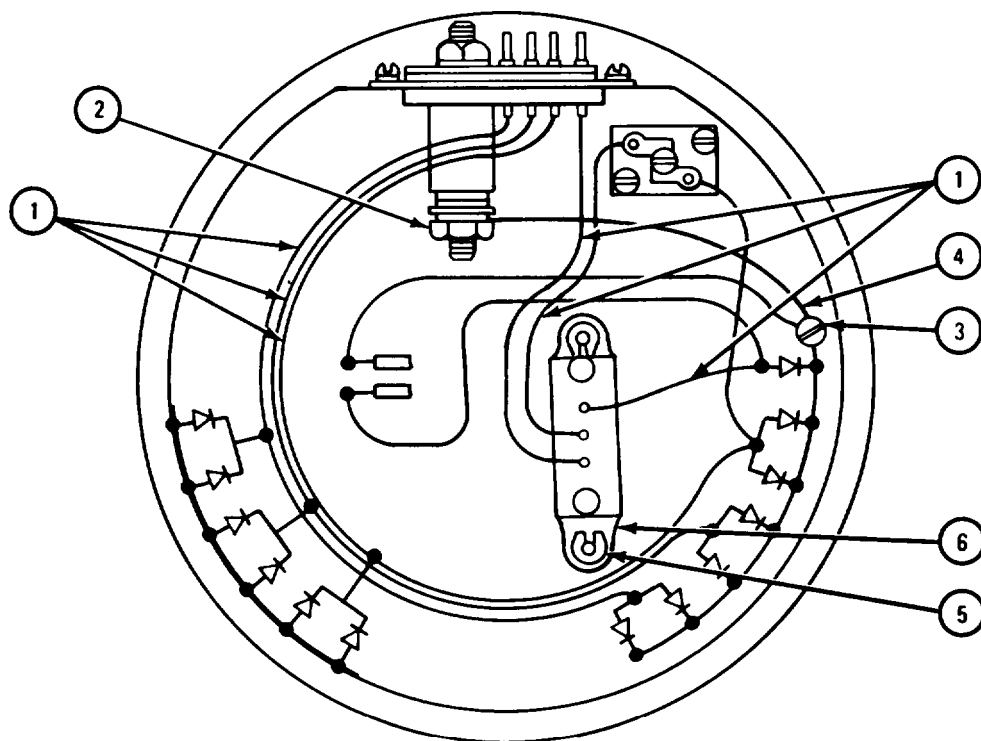


TA103504

FRAME 2

1. Tag all leads (1) so they will be put back the same way.
2. Unsolder leads (1) and take them out.
3. Take off nut (2) and screw (3). Take off output strap (4).
4. Take out two lockclips (5).
5. Take out socket terminal (6).

GO TO FRAME 3

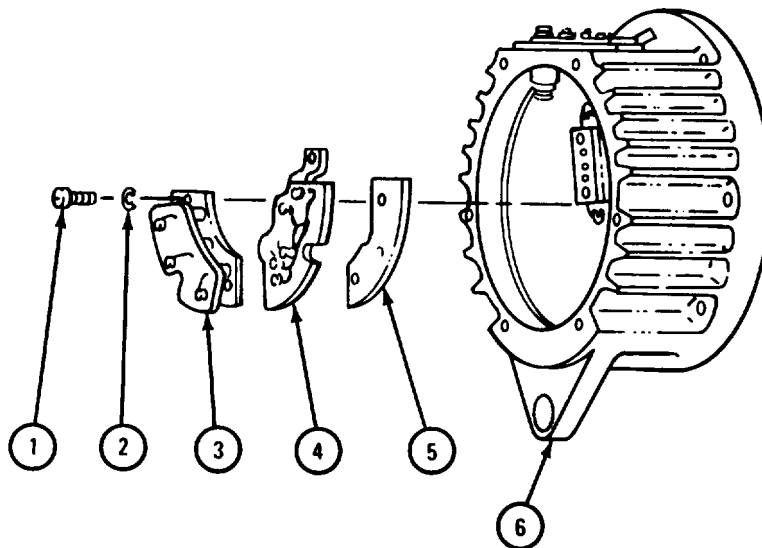


TA103505

FRAME 3 |

1. Take out six screws (1) and lockwashers (2) ,
2. Take negative rectifier mount (3) , positive rectifier mount (4) , and insulator (5) from end housing (6).

GO TO FRAME 4

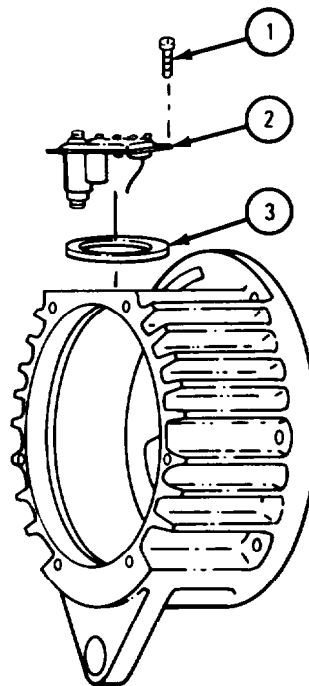


TA103506

FRAME 4

1. Take out four screws (1).
2. Take out terminal and lead assembly (2) and preformed packing (3). Throw away packing.

END OF TASK



TA103507

d. Cleaning. There are no special cleaning procedures needed. Refer to cleaning procedures given in para 1-3.

e. Inspection and Repair.

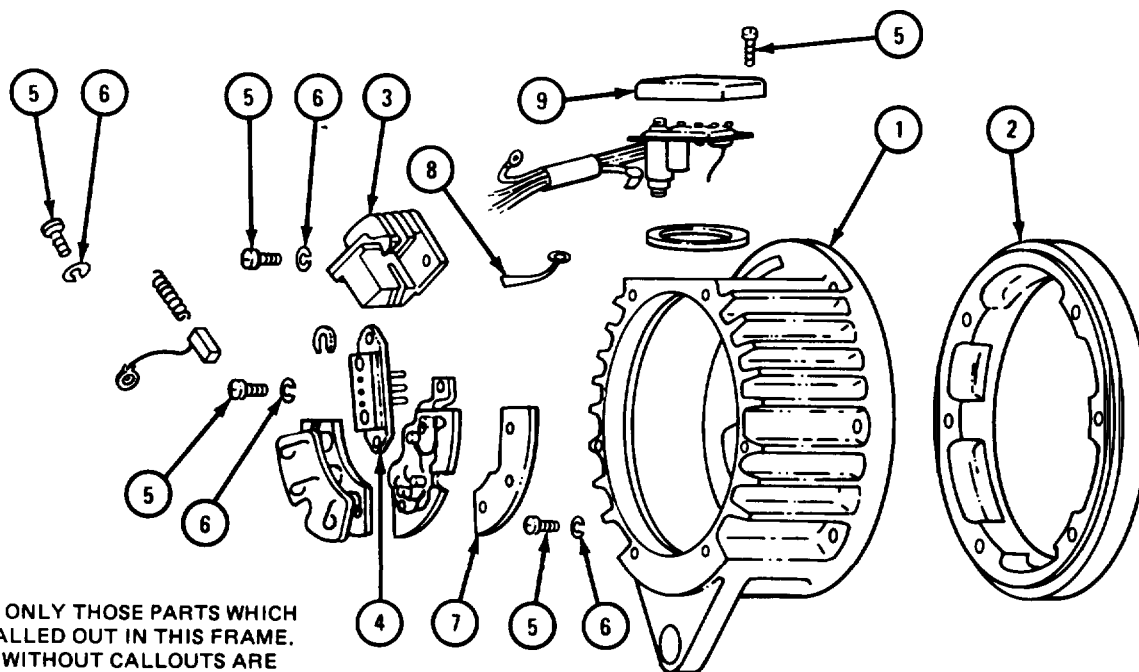
FRAME 1

NOTE

Generator is nonrepairable if any part is damaged.

1. Check that housing (1) is not cracked or broken and that it has no stripped threads.
2. Check that insulator (2) is not cracked or damaged.
3. Check that brush holder (3) is not cracked or damaged.
4. Check that connector (4) is not broken or damaged and that it has no loose pins.
5. Check that all screws (5) and washers (6) are not bent, broken or worn and that they have no stripped threads or damaged heads.
6. Check that insulator (7) is not cracked or broken.
7. Check that output strap (8) has no loose or broken leads.
8. Check that terminal cover (9) is not bent, Hammer out dents.

GO TO FRAME 2



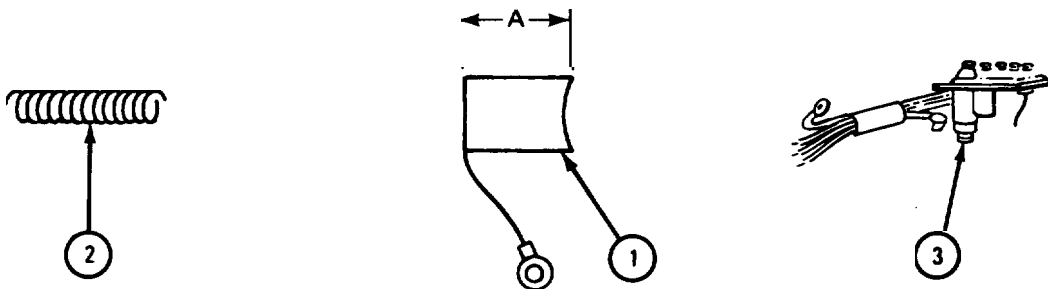
NOTE: CHECK ONLY THOSE PARTS WHICH ARE CALLED OUT IN THIS FRAME. PARTS WITHOUT CALLOUTS ARE SHOWN ONLY FOR REFERENCE PURPOSES OR ARE CHECKED IN ANOTHER FRAME.

TA103508

FRAME 2

1. Check that brushes (1) are not cracked or oil soaked, and that they have no loose leads. If brushes are damaged, get new ones.
2. Measure distance A on brushes (1). Brush length must be at least 1/4 inch. If brushes are less than 1/4-inch, get new ones.
3. Check that brush springs (2) are not overheated. Brush springs will turn blue if overheated. If springs are damaged, get new ones.
4. Using spring pressure checker, load brush springs (2) with 8.6 ounces. Spring length must be 7/8 inch. If springs are not 7/8 inch when loaded, get new ones.
5. Check that terminal and lead assembly (3) has no burned, frayed or broken wiring. If lead assembly is damaged, get a new one.

GO TO FRAME 3



TA 103509

FRAME 3

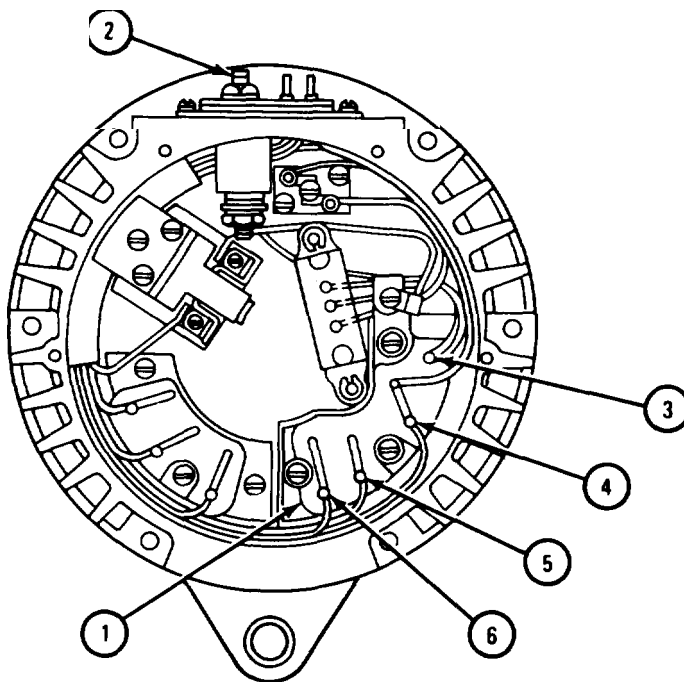
1. Check rectifier (1) using multimeter as follows.

NOTE

On ohmmeters that use one 1 1/2-volt dry cell, low resistance readings will be approximately 20 to 30 ohms.
On ohmmeters that use a 3-volt dry cell, low resistance readings will be approximately 10 to 15 ohms.

2. Touch negative test probe of multimeter to output terminal (2). Multimeter must show low resistance when positive test probe is touched to rectifier terminals (3, 4, 5, and 6). Get a new rectifier (1) if it does not show correct reading.
3. Touch positive test probe of multimeter to output terminal (2). Multimeter must show infinite resistance when negative test probe is touched to rectifier terminals (3, 4, 5, and 6). Get a new rectifier (1) if it does not show correct reading.

GO TO FRAME 4



TA103510

FRAME 4

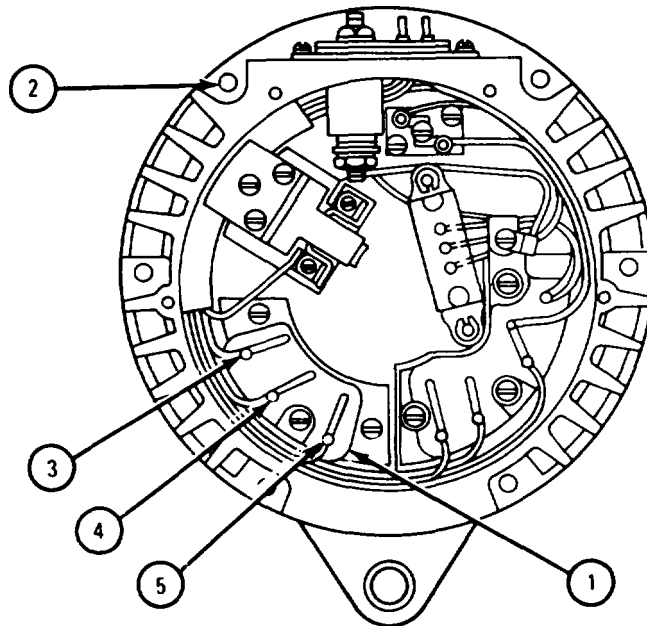
1. Check rectifier (1) using multimeter as follows.

NOTE

On ohmmeters that use one 1 1/2-volt dry cell, low resistance readings will be approximately 20 to 30 ohms. On ohmmeters that use a 3-volt dry cell, low resistance readings will be approximately 10 to 15 ohms.

2. Touch positive test probe of multimeter to screw hole (2). Multimeter must show low resistance when negative test probe is touched to rectifier terminals (3, 4, and 5). Get a new rectifier (1) if it does not show correct reading.
3. Touch negative test probe of multimeter to screw hole (2). Multimeter must show infinite resistance when positive test probe is touched to rectifier terminals (3, 4, and 5). Get a new rectifier (1) if it does not show correct reading.

END OF TASK



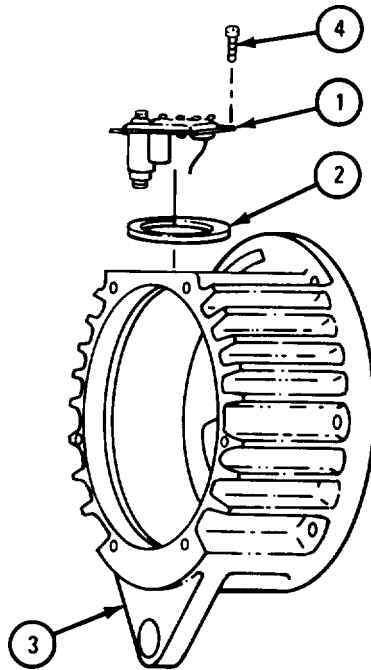
TA103511

f. Assembly.

FRAME 1

1. Place terminal and lead assembly (1) with preformed packing (2) into housing (3) .
2. Put in four screws (4).

GO TO FRAME 2



TA103513

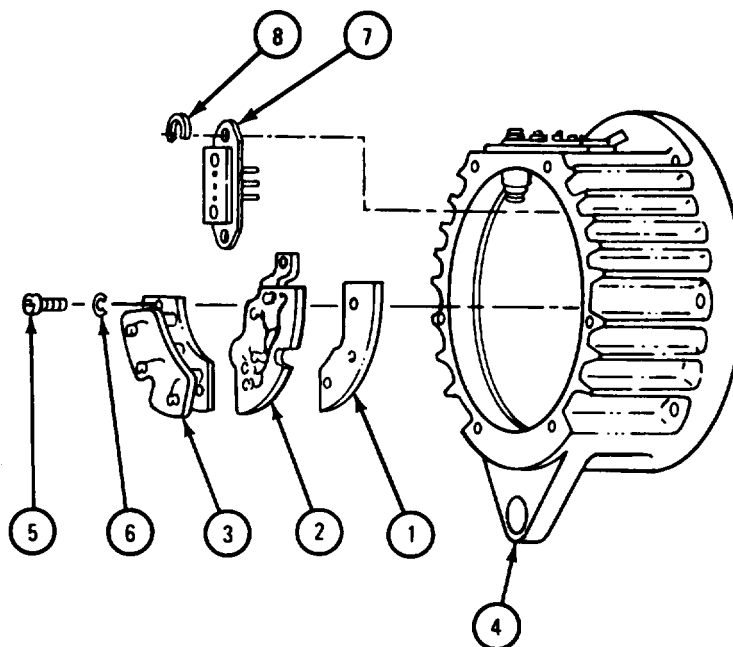
FRAME 2

NOTE

Insulator (1) must be put back with positive rectifier (2) .

1. Place insulator (1), positive rectifier (2), and negative rectifier (3) on mounting surface in end housing (4) .
2. Put in six screws (5) and lockwashers (6).
3. Put in socket terminal (7) and put on two lockclips (8).

GO TO FRAME 3

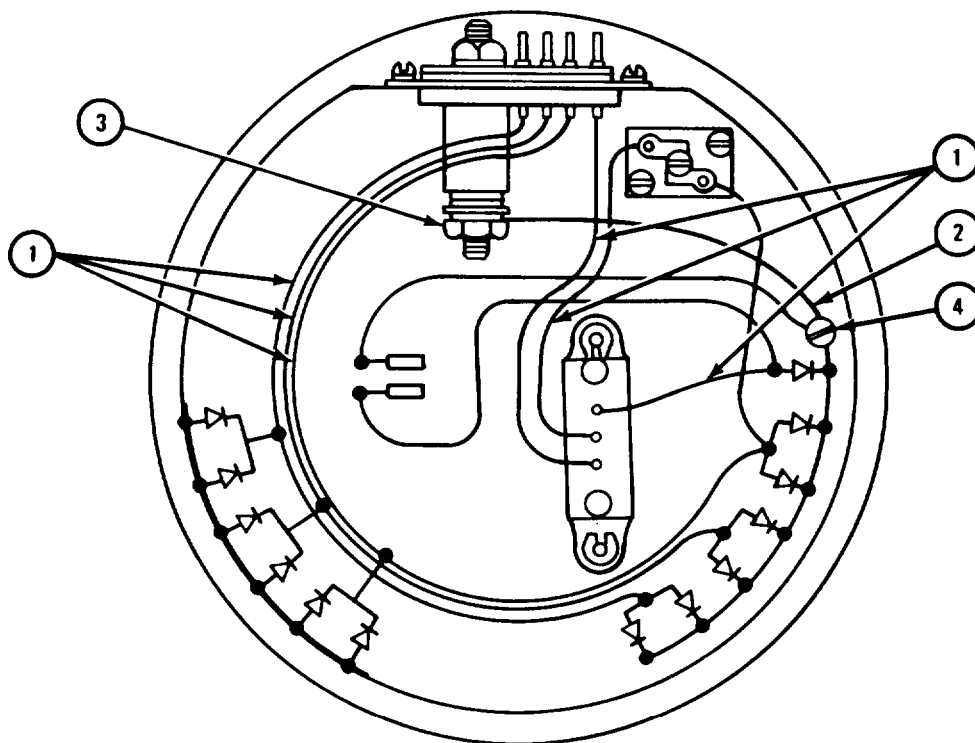


TA103512

FRAME 3

1. Solder all leads (1) as tagged. Take off tags.
2. Put in output strap (2) and put on nut (3) and screw (4).

GO TO FRAME 4

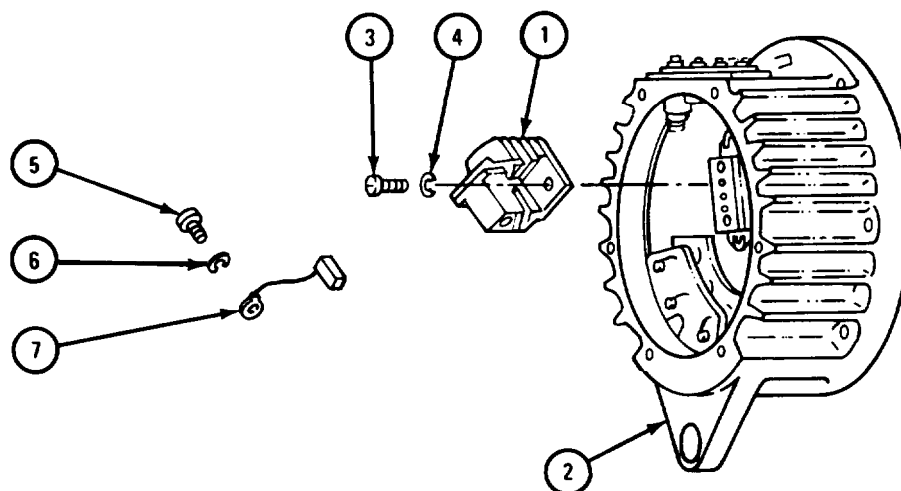


TA103514

FRAME 4

1. Put brush holder (1) into housing (2) .
2. Put in three screws (3) and lockwashers (4) .
3. Put in two screws (5) and lockwashers (6) to hold brush lead (7) in place.

END OF TASK



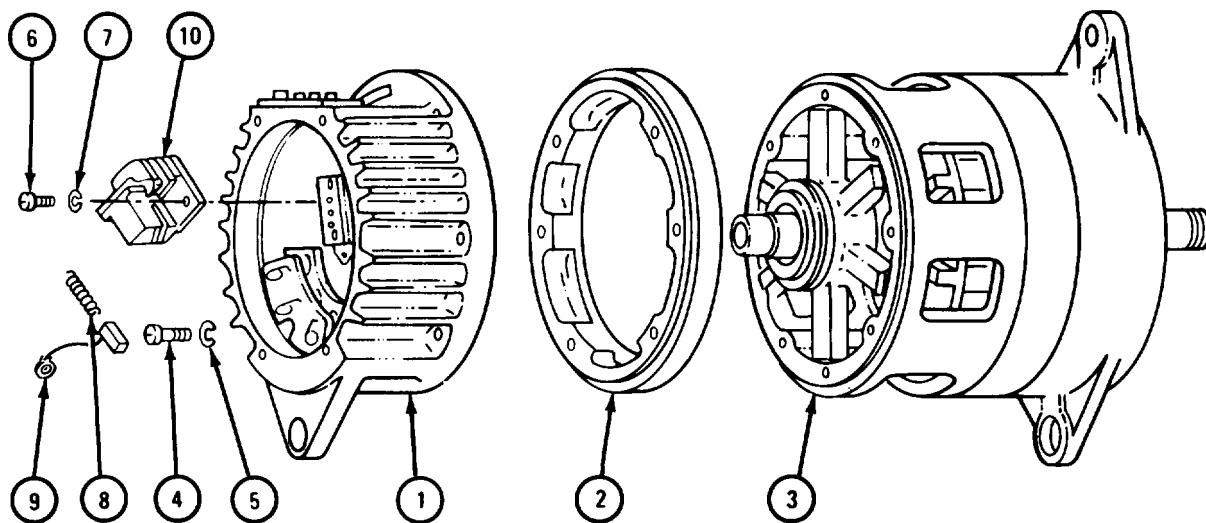
TA103515

g. Replacement.

FRAME 1

1. Put end housing (1) and insulator (2) onto intermediate housing (3) .
2. Aline scribe marks and put in six screws (4) and lockwashers (5). Tighten screws to 30 to 35 pound-inches.
3. Take out three screws (6) and lockwashers (7) . Put brush springs (8) and brushes (9) into brush holder (10). Put back three screws and lockwashers.

GO TO FRAME 2



TA103516

FRAME 2

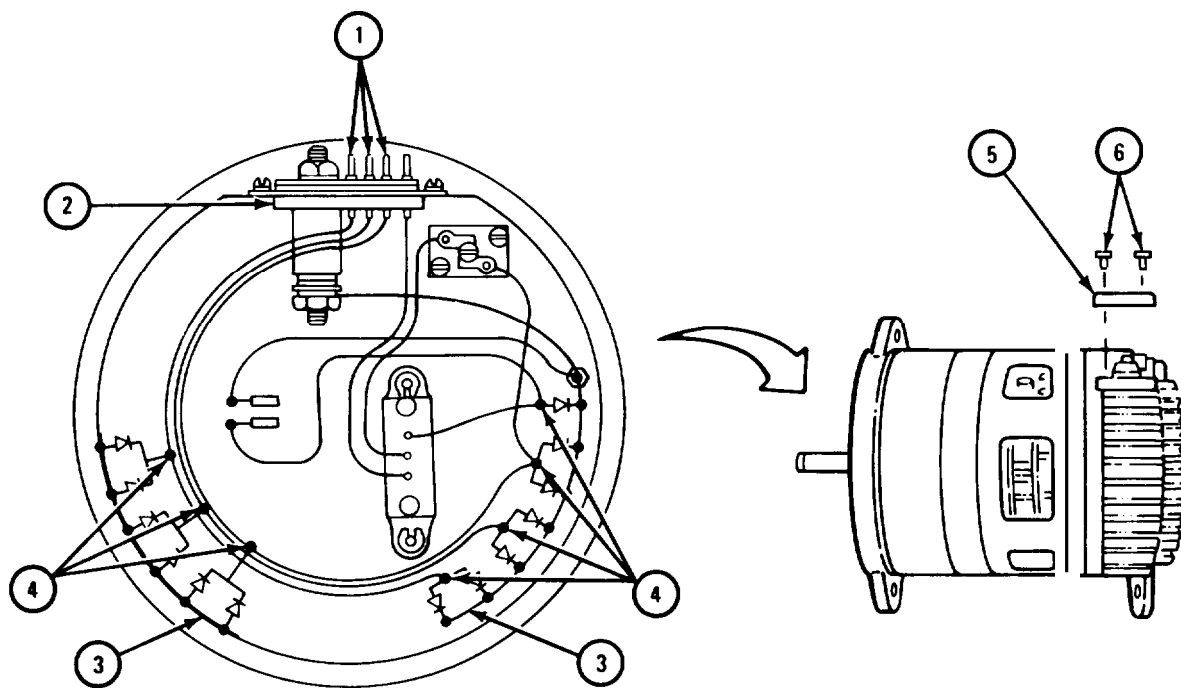
1. Solder three stator leads (1) to terminal and lead assembly (2).
2. Coat rectifier mounts (3), connections on terminal and lead assembly (2), and solder connections (4) with sealant.
3. Put on cover (5) and put in two screws (6).

NOTE

Follow-on Maintenance Action Required:

Replace regulator assembly. Refer to para 2-3.

END OF TASK



TA103517

2-5. INTERMEDIATE HOUSING ASSEMBLY .

TOOLS : No special tools required

SUPPLIES : Artillery and automotive grease, type GAA, MIL-G-10924

PERSONNEL: One

EQUIPMENT CONDITION : Generator removed from vehicle, pulley removed from generator.

a. Preliminary Procedures.

(1) Remove regulator assembly. Refer to para 2-3.

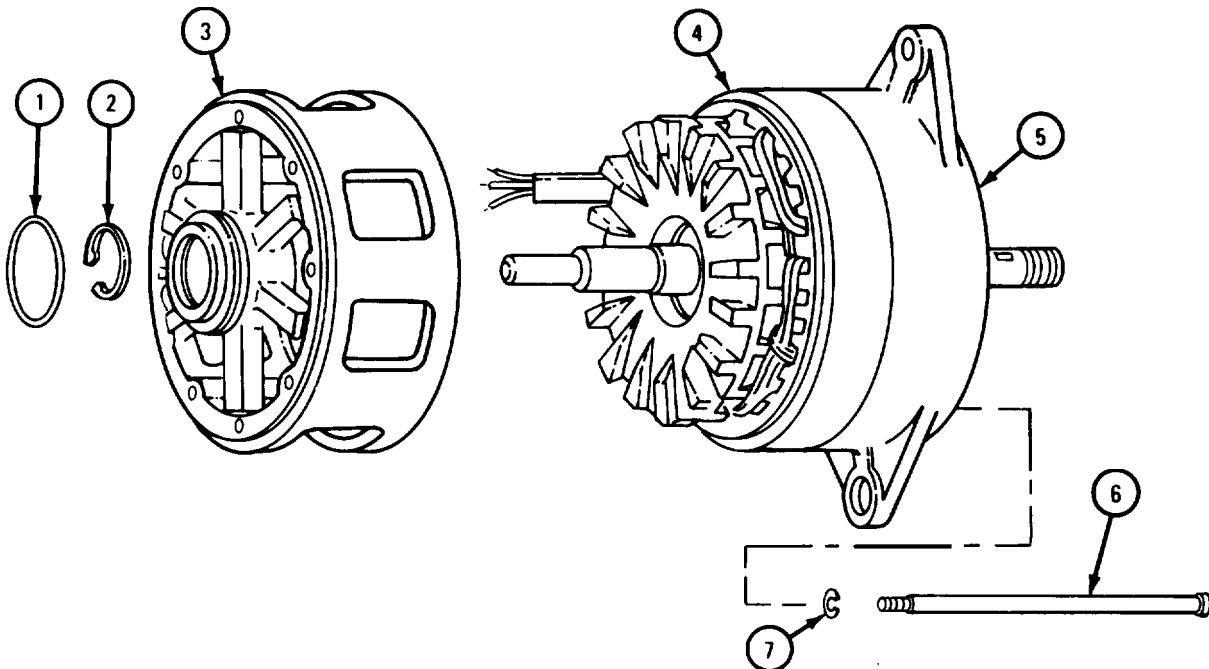
(2) Remove end housing and insulator. Refer to para 2-4.

Removal.

FRAME 1

1. Take off preformed packing (1) and retaining ring (2).
2. Scribe a mark across intermediate housing (3), stator (4) , and drive end housing (5) .
3. Take out six long screws (6) and lockwashers (7).
4. Take off intermediate housing (3) .

END OF TASK



TA 103518

c. Disassembly.

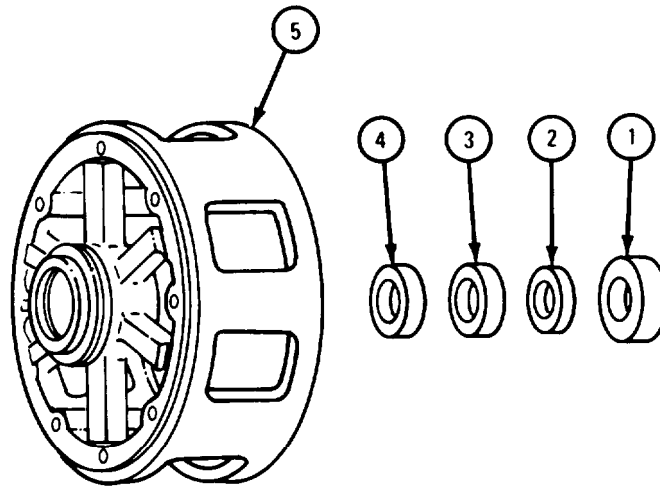
FRAME 1

CAUTION

Be careful when taking apart intermediate housing (5) .
If parts get damaged, generator is nonrepairable.

1. Take lip seal (1), felt retainer (2), felt washer (3), and felt retainer (4) from intermediate housing (5) .

END OF TASK



TA103520

d. Cleaning. There are no special cleaning procedures needed. Refer to cleaning procedures given in para 1-3.

e. Inspection and Repair.

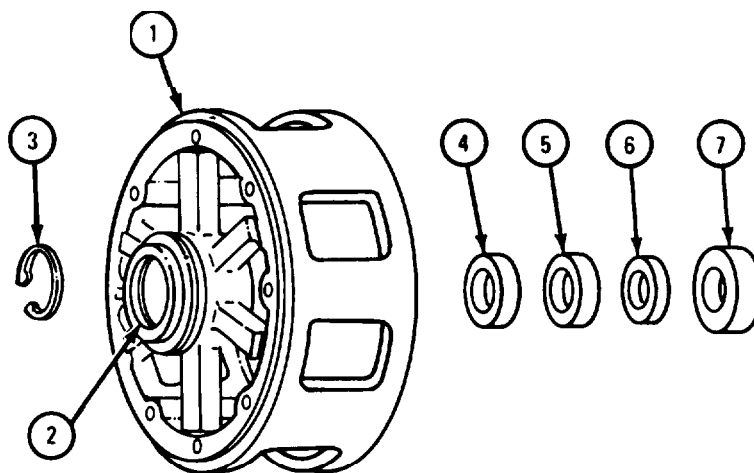
FRAME 1

NOTE

Generator is nonrepairable if any part is damaged.

1. Check that intermediate housing (1) is not cracked or broken.
2. Measure intermediate housing bearing bore (2). Bore must be 1.2489 to 1.2495 inches.
3. Check that retaining ring (3), felt retainer (4), felt washer (5), felt retainer (6), and rotor shaft bearing lip seal (7) are not damaged or worn.

END OF TASK



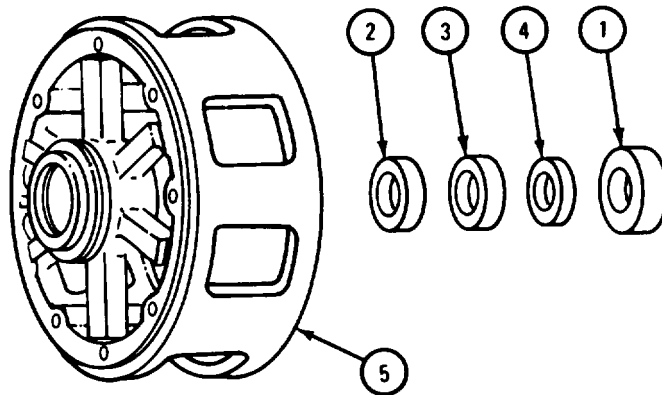
TA103521

f. Assembly.

FRAME 1

1. Coat inside and outside diameter of lip seal (1) with grease.
2. Put felt retainer (2), felt washer (3), felt retainer (4), and lip seal (1) into bore of intermediate housing (5).

END OF TASK



TA103522

g. Replacement.

FRAME 1 |

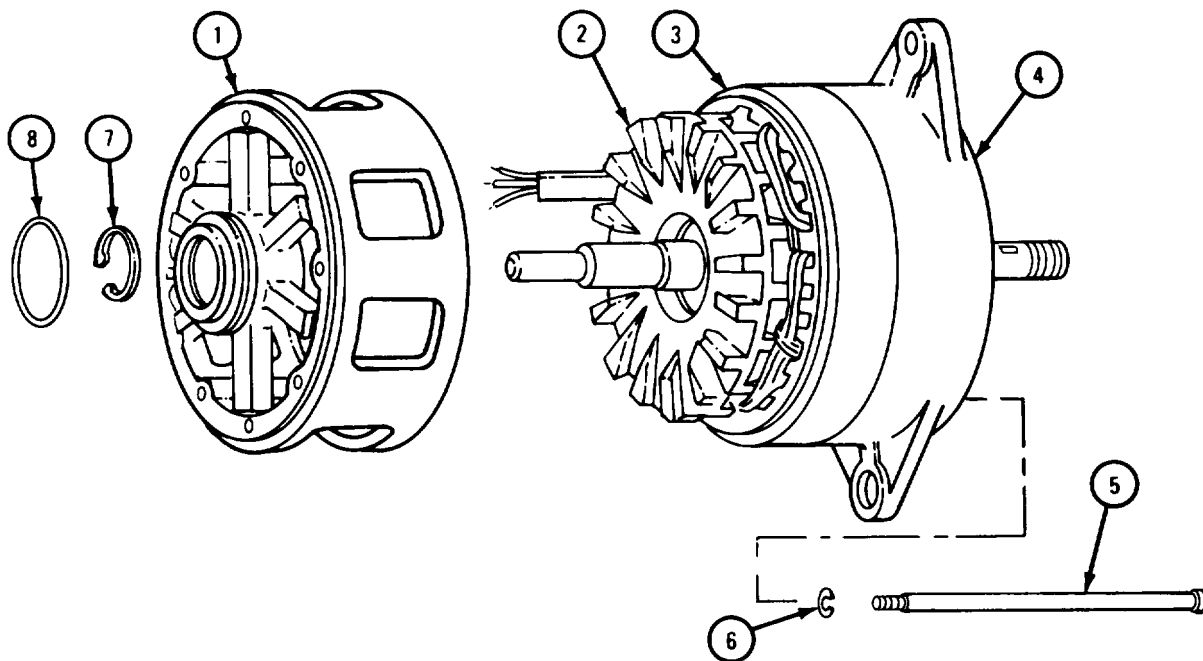
1. Slide intermediate housing (1) over rotor and fan assembly (2) with leads of stator (3) aligned with slot in intermediate housing.
2. Aline scribe marks on intermediate housing (1), stator (3), and drive end housing (4) .
3. Put in six long screws (5) and lockwashers (6).
4. Put retaining ring (7) in place and put preformed packing (8) around outer bore of intermediate housing (1).

NOTE

Follow-on Maintenance Action Required:

1. Replace end housing assembly and insulator. Refer to para 2-4g.
2. Replace regulator assembly. Refer to para 2- 3c.

END OF TASK



TA103523

2-6. ROTOR, STATOR, AND DRIVE END BELL ASSEMBLY.

TOOLS : No special tools required

SUPPLIES : Artillery and automotive grease, type GAA, MIL-G-10924
Solvent, dry cleaning, type II (SD-2) Fed. Spec P-D-680
Felt, 1/8-inch thick
Masking tape, PPP-T-42C

PERSONNEL: One

EQUIPMENT CONDITION : Generator removed from vehicle, pulley removed from generator.

a. Preliminary Procedures.

- (1) Remove regulator assembly. Refer to para 2-3.
- (2) Remove end housing and insulator. Refer to para 2-4.
- (3) Remove intermediate housing. Refer to para 2-5.

b. Disassembly.

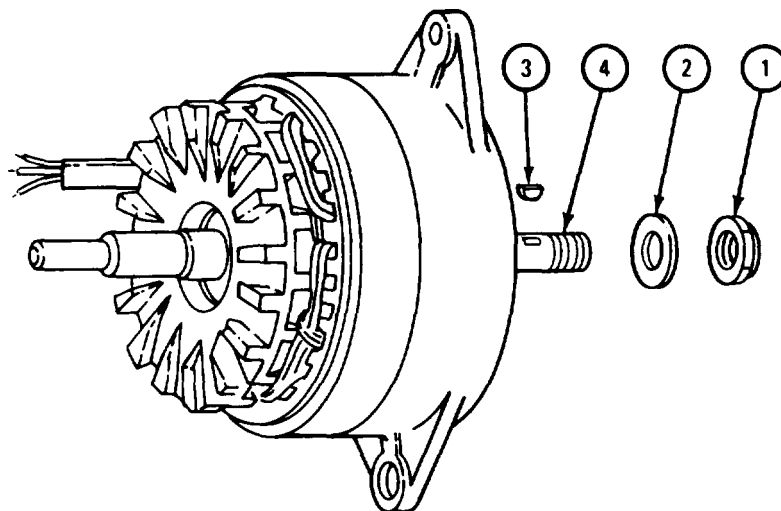
CAUTION

Be careful when taking apart rotor, stator, and drive end bell assembly. If any part is damaged, generator is nonrepairable.

FRAME 1

1. Take off nut (1), washer (2), and woodruff key (3) from shaft (4) of fan and rotor assembly.

GO TO FRAME 2

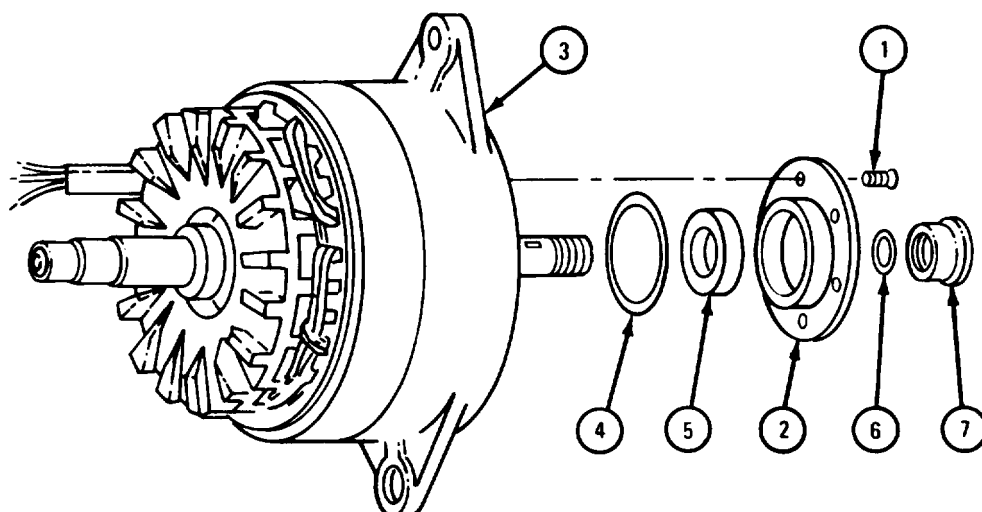


TA 103524

FRAME 2

1. Take out six screws (1) .
2. Take bearing retainer (2) off drive end housing (3) .
3. Take preformed packing (4) , sleeve spacer seal (5) , preformed packing (6) , and sleeve spacer (7) from bearing retainer (2) .

GO TO FRAME 3

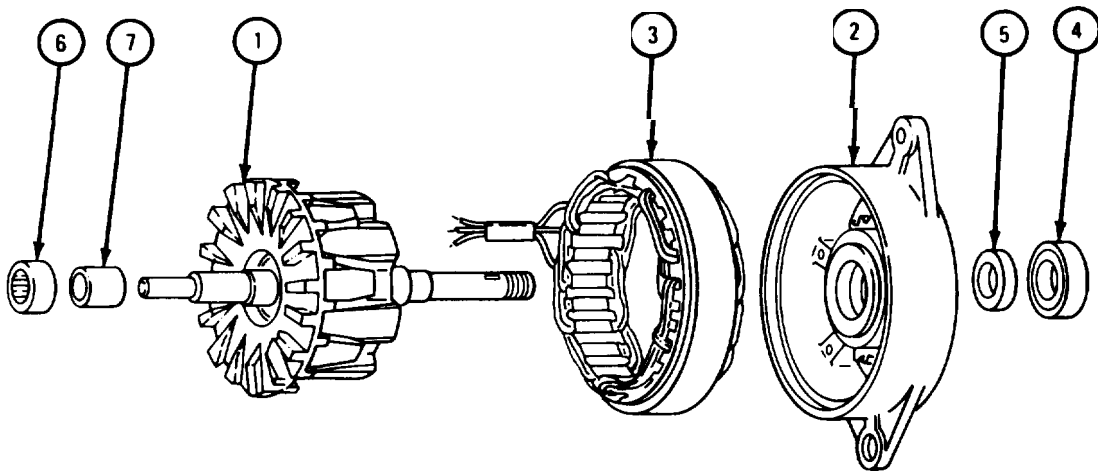


TA103525

FRAME 3

1. Using puller, drive shaft of rotor and fan assembly (1) from drive end housing (2) .
2. Take stator (3) from drive end housing (2). Tap lightly with soft-faced hammer if needed.
3. Press bearing (4) and seal (5) from drive end housing (2).
4. Pull roller bearing (6) and inner race (7) from shaft of rotor and fan assembly (1).

END OF TASK



TA103526

c. Cleaning. There are no special cleaning procedures needed. Refer to cleaning procedures given in para 1-3.

d. Inspection and Repair.

(1) Inspection.

FRAME 1

NOTE

If parts are not within limits given in table 2-1, generator is nonrepairable.

1. Measure roller bearing outside diameter (1) and inside diameter (2).
2. Measure roller bearing inner race outside diameter (3) and inside diameter (4).
3. Measure outside diameter of sliprings (5).
4. Measure outside diameter of rotor shaft at roller bearing seat (6).
5. Measure outside diameter of rotor shaft at drive end bearing seat (7).
6. Measure drive end bearing inside diameter (8) and outside diameter (9).

GO TO FRAME 2

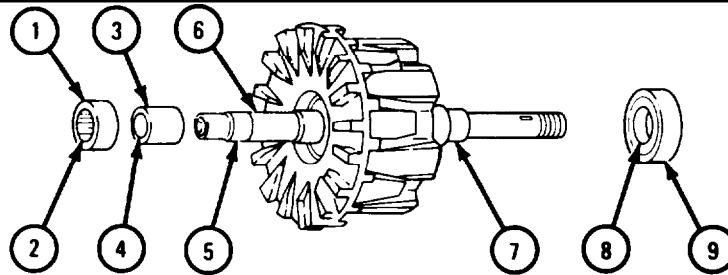


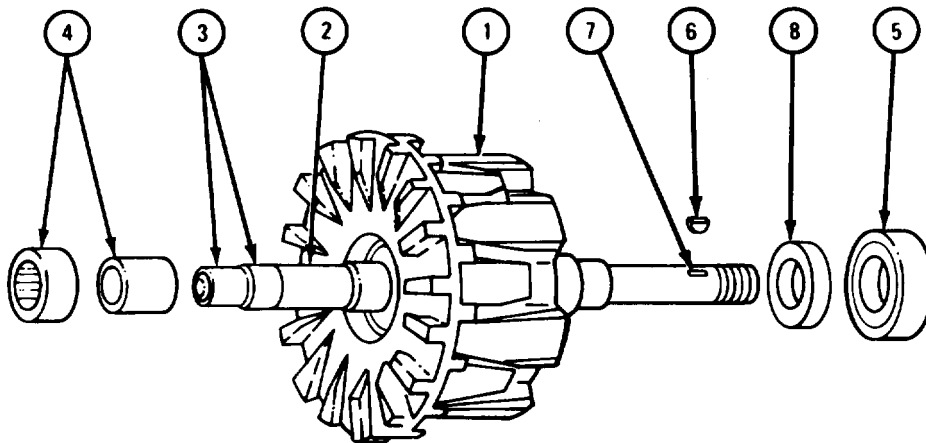
Table 2-1. Rotor, Stator, and Drive End Bell Assembly Wear Limits

| Index Number | Item /Point of Measurement | Size and Fit of New Parts (inches) | Wear Limits (inches) |
|--------------|---|------------------------------------|----------------------|
| 1 | Roller bearing outside diameter | 1.2495 to 1.2500 | None |
| 2 | Roller bearing inside diameter | 0.7508 to 0.7519 | None |
| 3 | Roller bearing inner race outside diameter | 0.7482 to 0.7487 | None |
| 4 | Roller bearing inner race inside diameter | 0.4995 to 0.5000 | None |
| 5 | Outside diameter of sliprings | 0.715 to 0.725 | 0.680 |
| 6 | Outside diameter of rotor shaft at roller bearing inner race seat | 0.5003 to 0.5006 | None |
| 7 | Outside diameter of rotor shaft of drive end bearing seat | 0.7874 to 0.7877 | None |
| 8 | Drive end bearing inside diameter | 0.7870 to 0.7874 | None |
| 9 | Drive end bearing outside diameter | 2.0470 to 2.0475 | None |

FRAME 2

1. Using multimeter, check rotor (1) for grounds by touching on test probe of multimeter to rotor shaft (2) and other test probe to sliprings (3). Ohm-meter must read over 10,000 ohms. If it does not, generator is nonrepairable.
2. Using multimeter, check sliprings (3) resistance. Resistance must be between 8.8 and 10.2 at 77°F. If resistance is not within given limits, generator is non repairable.
3. Check roller bearing (4) and drive end bearing (5) for serviceability. Refer to TM 9-214. If bearings are damaged, generator is nonrepairable.
4. Check that woodruff key (6) and key seat (7) are not damaged or worn. If woodruff key is damaged, get a new one. If key seat is damaged, generator is nonrepairable.
5. Check that seal (8) is not worn or damaged. If seal is damaged, generator is nonrepairable.

GO TO FRAME 3

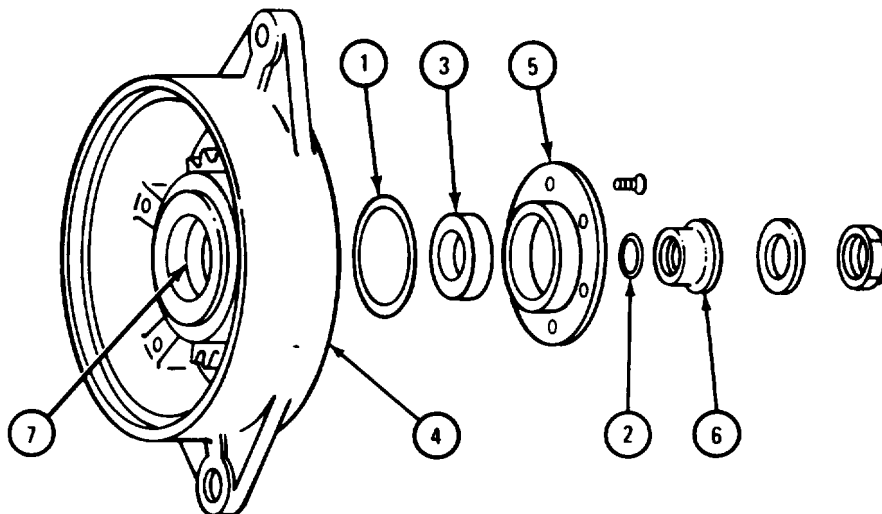


TA103529

FRAME 3

1. Check that preformed packings (1 and 2) and seal (3) are not damaged or worn. If packings or seal are damaged, generator is nonrepairable.
2. Check that drive end housing (4), bearing retainer (5), and sleeve spacer (6) are not cracked, warped or damaged. If parts are damaged, generator is nonrepairable.
3. Measure inside diameter of drive housing bearing bore (7). Bore must be 2.0471 to 2.0477 inches. If bore is not within given limits, generator is non-repairable.

GO TO FRAME 4



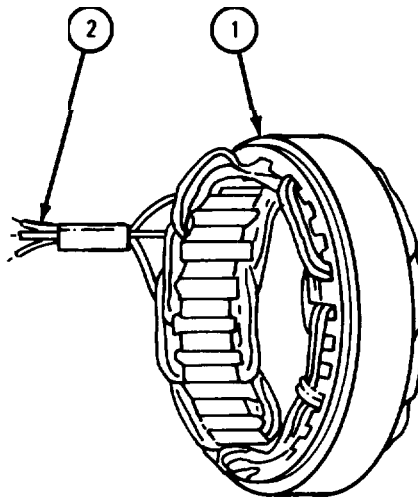
NOTE
CHECK ONLY THOSE PARTS WHICH
ARE CALLED OUT IN THIS FRAME.
PARTS WITHOUT CALLOUTS ARE
SHOWN FOR REFERENCE PURPOSES
OR ARE CHECKED IN ANOTHER FRAME.

TA103530

FRAME 4

1. Check that stator (1) is not cracked or broken. If stator is damaged, generator is nonrepairable.
2. Using multimeter, check stator (1) for continuity. Touch test probes of multimeter to each pair of stator leads (2). Multimeter must show low resistance. If it does not, generator is nonrepairable.
3. Using multimeter, check stator (1) for grounds. Touch one test probe to stator and other test probe to each stator lead (2) . If stator is grounded, generator is nonrepairable.

GO TO FRAME 5



TA103531

FRAME 5

NOTE

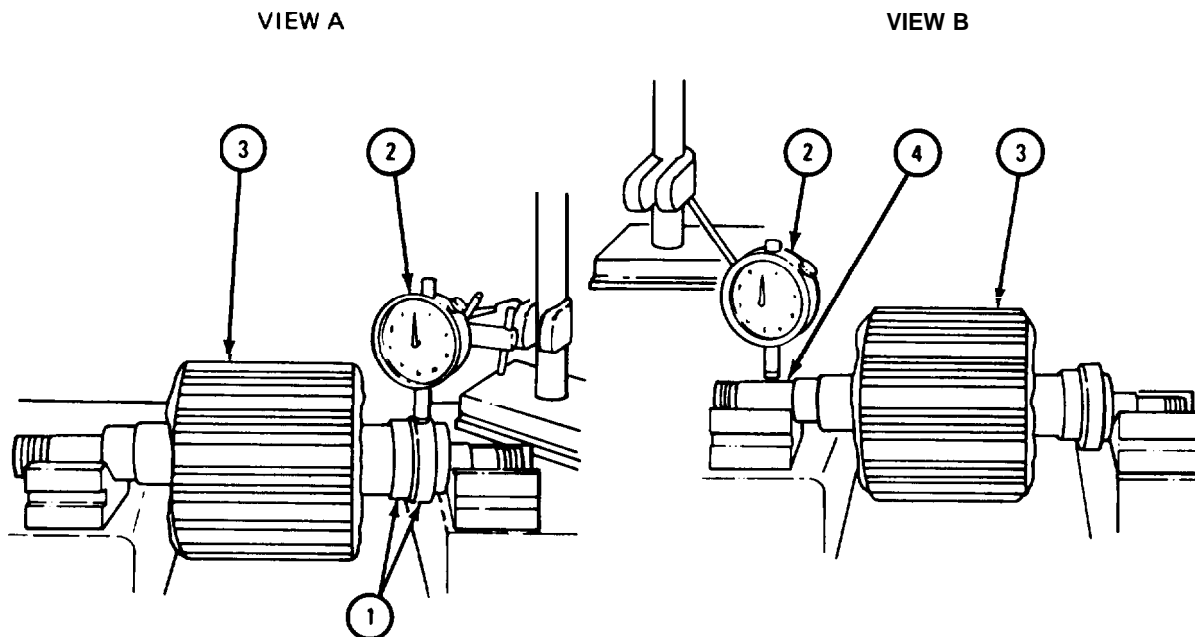
If sliprings (1) are out-of-round, they must be turned down.

1. Measure runout of sliprings (1) using dial indicator (2) and V-blocks as shown in view A. Set dial indicator on one slipring, turn rotor (3), and note reading on dial indicator as rotor turns. Runout cannot be more than 0.001 inches.
2. Do step 1 again for other slipring (1).
3. Check that rotor shaft (4) is straight by using a dial indicator (2) as shown in view b. Set dial indicator on rotor shaft, turn rotor (3), and note reading on dial indicator.

NOTE

If reading on dial indicator changes as rotor turns, rotor shaft (4) is bent and generator is nonrepairable.

END OF TASK



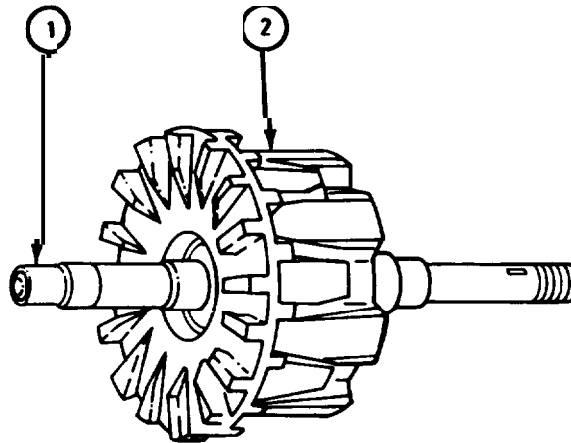
TA103532

(2) Repair.

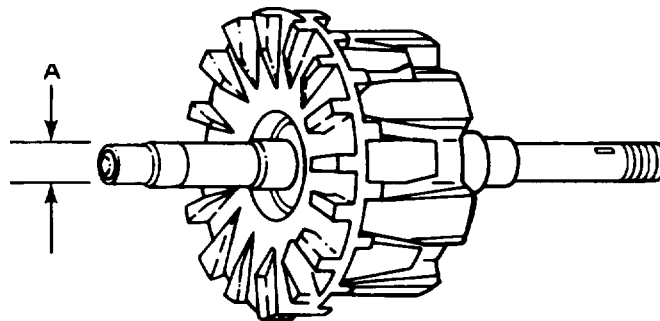
FRAME 1

1. If slipring (1) runout is more than 0.001 inches, send rotor (2) to machine shop to have sliprings turned down. Figure 2-1 gives slipring allowable wear limits for machine shop use.

END OF TASK



TA103533



TA103534

| Index | Item /Point of Measurement | Size and Fit of New Parts (inches) | Wear Limits (inches) |
|-------|-------------------------------|--|-------------------------|
| A | Outside diameter of sliprings | 0.715 to 0.725 | 0.680 |

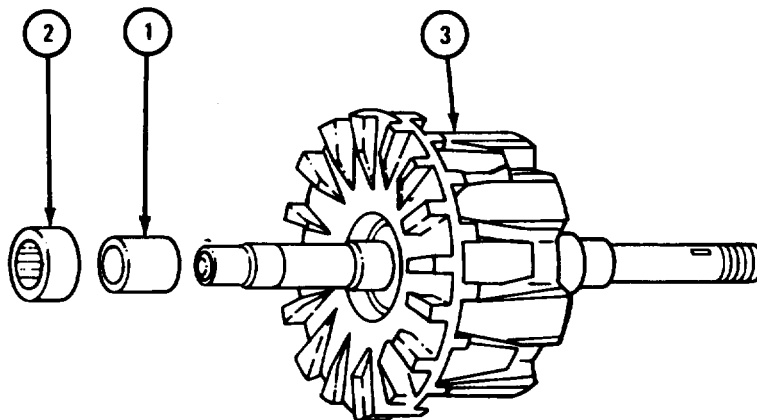
Figure 2-1. Slipring (Model AMA-5102UT) Allowable Wear Limits

e. Assembly.

FRAME 1

1. Press roller bearing inner race (1) and roller bearing (2) onto shaft of fan and rotor assembly (3).

GO TO FRAME 2



TA103535

FRAME 2

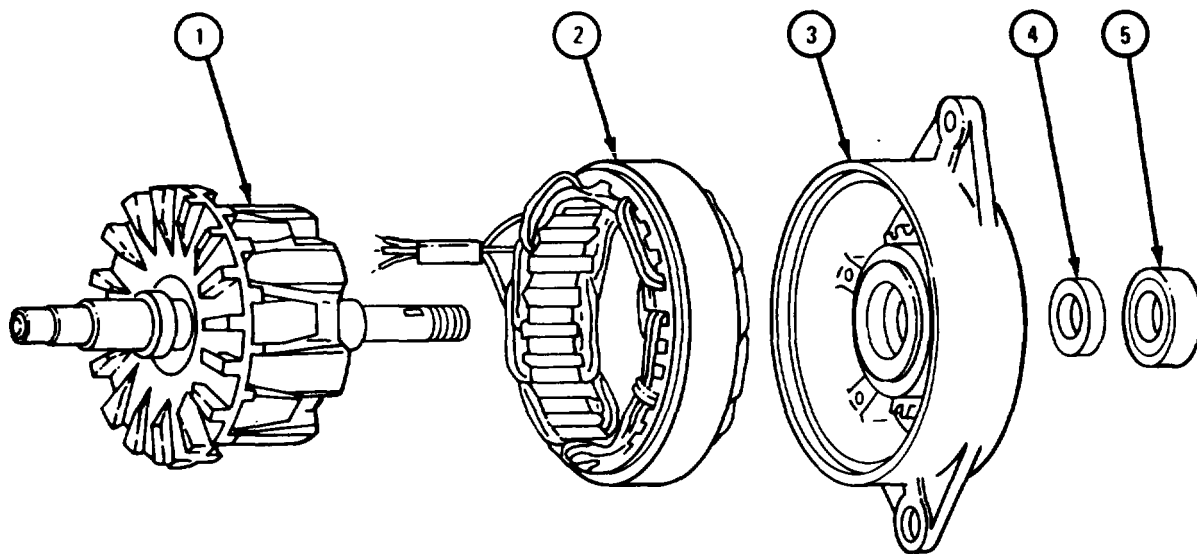
1. Place a piece of 1/8-inch thick felt over fan of rotor and fan assembly (1).
2. Place stator (2) over rotor and fan assembly (1) with stator leads facing fan.
- 3* Place drive end housing (3) up to stator (2).

NOTE

Have machine shop make fabricated tool. Refer to figure 2-2.

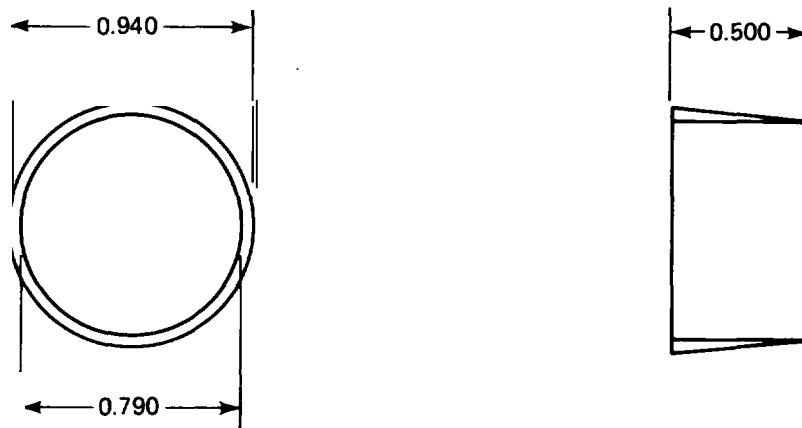
4. Put rotor assembly tool over threaded end of shaft so that large end of tool is against shaft shoulder. Coat shaft journal and inside diameter of lip seal (4) with grease. Place lip seal over tool and onto shaft and take off tool.
5. With sharp edge of inner race of bearing (5) facing away from rotor (1), press bearing onto shaft of rotor and fan assembly.

GO TO FRAME 3



TA103537

NOTE: ALL DIMENSIONS SHOWN ARE IN INCHES



MATERIAL: ALUMINUM TUBING

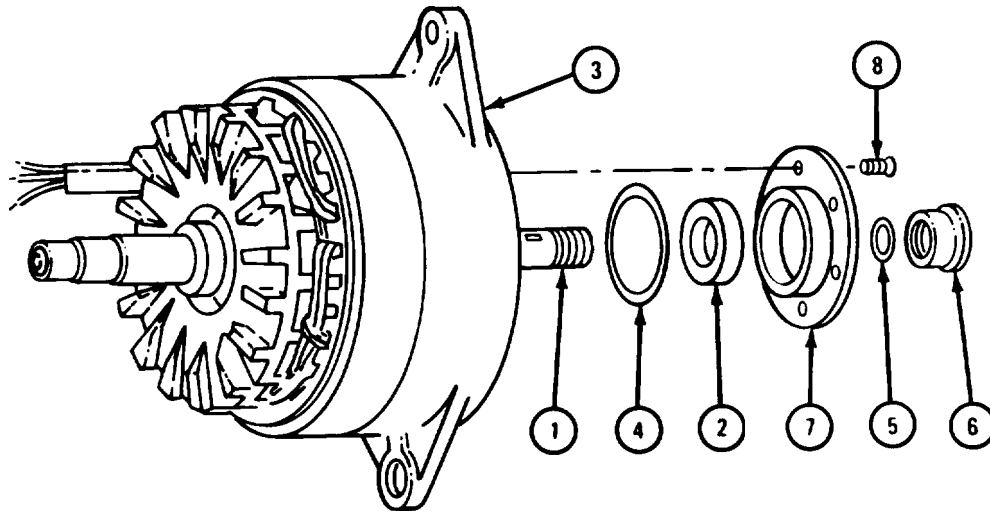
TA103536

Figure 2-2. Rotor Assembly (Model AMA-5102UT) Tool
Fabrication Instructions

FRAME 3

1. Wrap one turn of tape around threads of rotor and fan assembly (1).
2. Coat spacer seal (2) with grease and press seal into bore of drive end housing (3).
3. Coat preformed packings (4 and 5) and sleeve spacer (6) with grease.
4. Place packing (4), bearing retainer (7), packing (5), and sleeve spacer (6) on drive end housing (3).
5. Screw in six screws (8) and tighten screws to 50 to 60 pound-inches.

GO TO FRAME 4



TA103538

FRAME 4

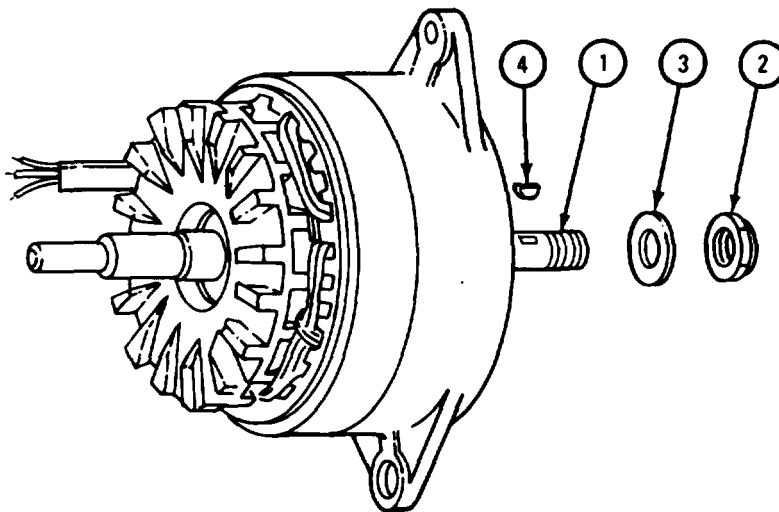
1. Take tape off shaft (1).
2. Put nut (2), washer (3), and woodruff key (4) on shaft (1).
3. Wrap one turn of tape around woodruff key (4).

NOTE

Follow-on Maintenance Action Required:

1. Replace intermediate housing. Refer to para 2-5.
2. Replace end housing and insulator. Refer to para 2-4.
3. Replace regulator assembly. Refer to para 2-3.

END OF TASK



TA103539

Section III. LEECE-NEVILLE MODEL GENERATOR 3002AC

NOTE

The following procedures are the same for both early and late model 3002AC generators except where noted.

2-7. FAN AND HUB ASSEMBLY.

TOOLS: No special tools required

SUPPLIES: None

PERSONNEL: One

EQUIPMENT CONDITION: Generator removed from vehicle, pulley removed from generator.

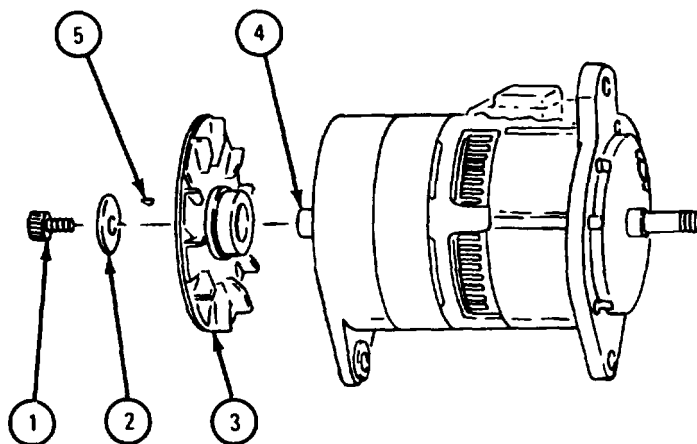
a. Preliminary Procedure. Clean outside of generator before disassembly.
Refer to para 1-3.

b. Removal.

FRAME 1

1. Take out screw (1) and washer (2).
2. Take fan and hub assembly (3) off rotor shaft (4).
3. Take out woodruff key (5).

END OF TASK



TA103540

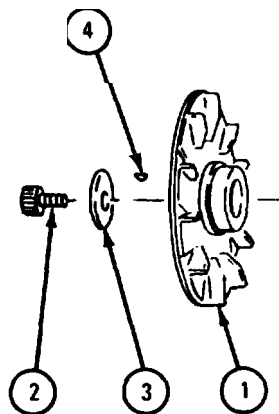
c. Cleaning. There are no special cleaning procedures needed. Refer to cleaning procedures given in para 1-3.

d. Inspection and Repair.

FRAME 1

1. Check that fan and hub assembly (1) is not cracked or damaged. Straighten any bent fins on fan. If fan is bent, generator is, nonrepairable.
2. Check that screw (2) is not bent or broken and that it has no stripped threads. Fix minor thread damage by chasing threads with right size die-nut. If threads cannot be fixed, generator is nonrepairable.
3. Check that washer (3) and woodruff key (4) are not broken or cracked. If parts are damaged, get new ones.

END OF TASK



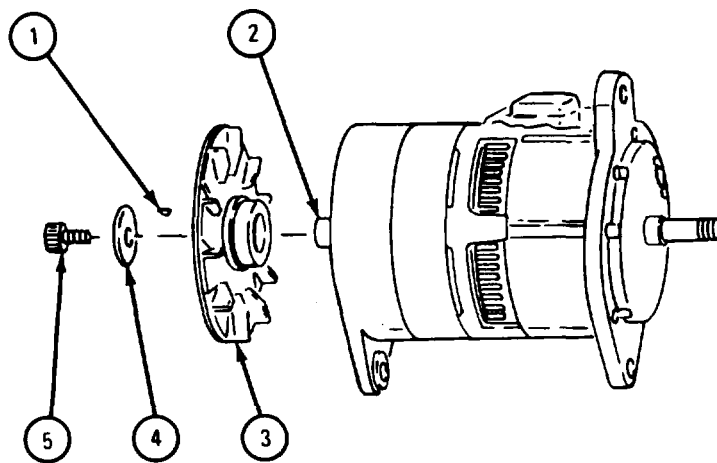
TA103541

e. Replacement.

FRAME 1

1. Put woodruff key (1) in shaft of rotor (2).
2. Put fan (3) on shaft of rotor (2) with smooth side out.
3. Put washer (4) and screw (5) in end of shaft of rotor (2) .

END OF TASK



TA103542

2-8. DRIVE END BELL AND REGULATOR ASSEMBLY.

TOOLS: No special tools required

SUPPLIES : Drive end bell preformed packing (large)
Drive end bell seal

PERSONNEL: One

EQUIPMENT CONDITION: Generator removed from vehicle, pulley removed from generator.

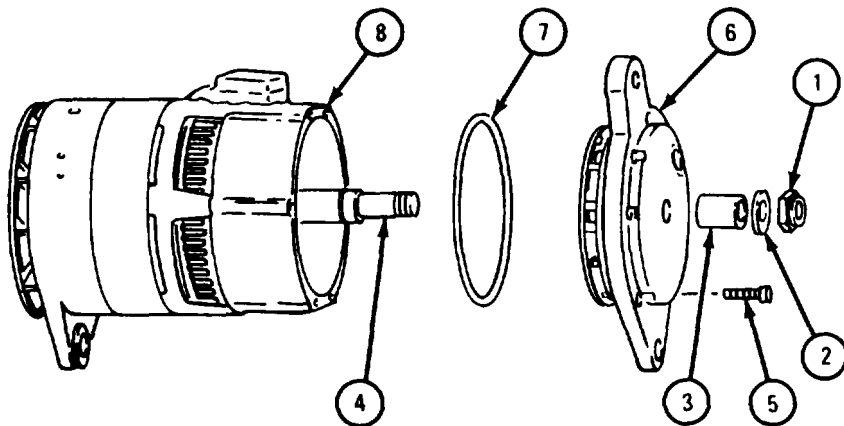
a. Preliminary Procedure. Clean outside of generator before disassembly.
Refer to para 1-3.

b. Removal.

FRAME 1

1. Take off shaft nut (1), guard washer (2), and spacer (3) from rotor shaft (4).
2. Take out six screws (5).
3. Pull drive end bell (6) and preformed packing (7) off housing (8). Throw away packing.

END OF TASK



TA103543

c. Disassembly.

FRAME 1

1. Take out four screws (1), and take regulator (2) off end bell (3).

NOTE

Do not take apart voltage regulator (2). No repair can be made.

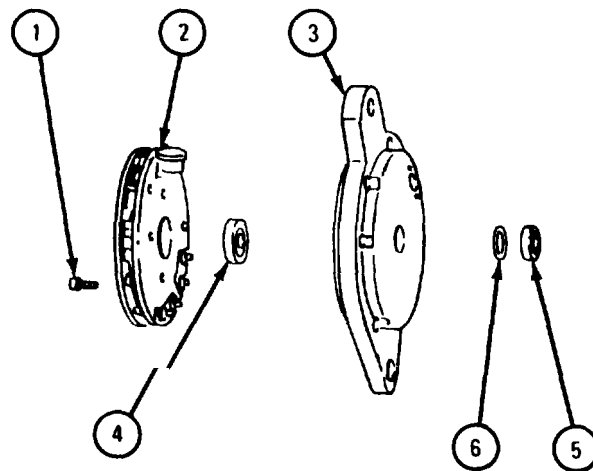
2. Press bearing (4) from drive end bell (3) by pressing on pulley side of bearing.

NOTE

Do not take out oil seal (6) unless it is damaged.

3. Take spacer (5) and oil seal (6) from drive end bell (3). Throw away oil seal.

GO TO FRAME 2

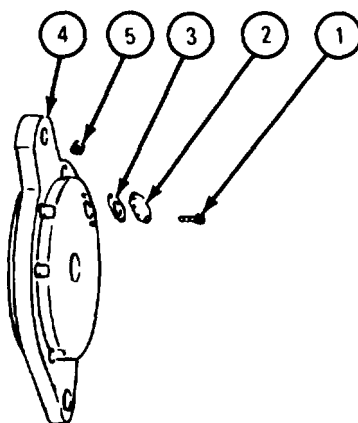


TA103544

FRAME 2

1. Take out two screws (1) .
2. Take cover (2) and gasket (3) off drive end bell (4).
3. Take out pipe plug (5).

END OF TASK



TA103545

d. Cleaning. There are no special cleaning procedures needed. Refer to cleaning procedures given in para 1-3.

e. Inspection and Repair.

FRAME 1

1. Check that screws (1), washer (2), pipe plug (3) and nut (4) are not bent or broken and that they have no damaged threads. If parts are damaged, get new ones.

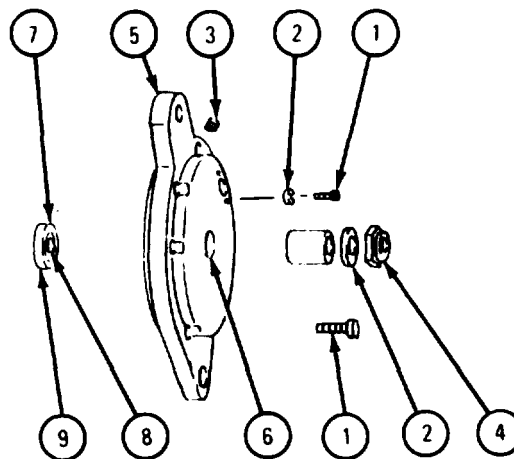
NOTE

Readings must be within limits given in table 2-2. If bearing is not within given limits, throw away bearing and get a new one. If drive end bell is not within given limits, generator is nonrepairable.

2. Check that drive end bell (5) is not cracked, warped or damaged in any way. Measure bearing bore (6) in drive end bell. If drive end bell is damaged or worn, generator is nonrepairable.
3. Measure bearing (7) inner and outer diameters (8 and 9).
4. Refer to TM 9-214 to service bearing (7). Get a new bearing if it is damaged.

END OF TASK

NOTE
CHECK ONLY THOSE PARTS WHICH
ARE CALLED OUT. PARTS WITHOUT
CALLOUTS ARE SHOWN ONLY FOR
REFERENCE PURPOSES.



TA103546

Table 2-2. Drive End Bell Assembly Wear Limits

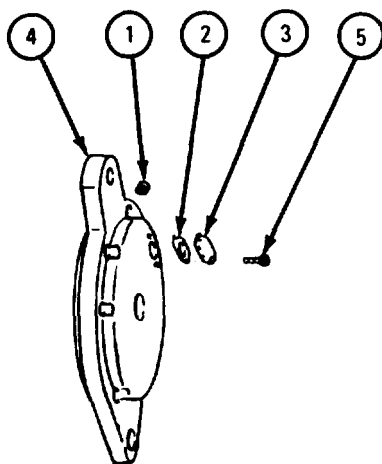
| Index Number | Item /Point of Measurement | Size and Fit of New Parts (inches) | Wear Limits (inches) |
|--------------|---------------------------------------|------------------------------------|----------------------|
| 6 | End bell bearing bore | 2.0470 to 2.0475 | None |
| 8 | Inside diameter of drive end bearing | 0.7874 to 0.7870 | None |
| 9 | Outside diameter of drive end bearing | 2.0472 to 2.0467 | None |

f. Assembly.

FRAME 1

1. Put pipe plug (1), gasket (2), and cover plate (3) into drive end housing (4).
2. Put in two screws (5).

GO TO FRAME 2



TA103547

FRAME 2

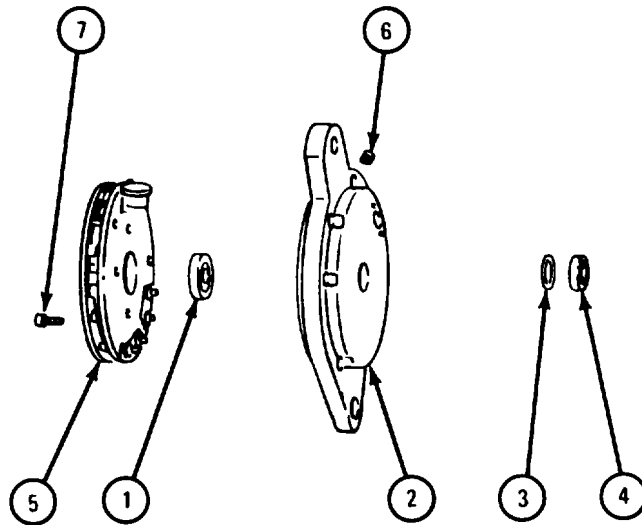
1. Press bearing (1) into drive end bell (2).
2. Press oil seal (3) into spacer (4).
3. Put spacer (4) into drive end bell (2).

NOTE

Make sure voltage adjusting screw on regulator (5)
lines up with pipe plug (6).

4. Put on voltage regulator (5) and put in four screws (7).

END OF TASK



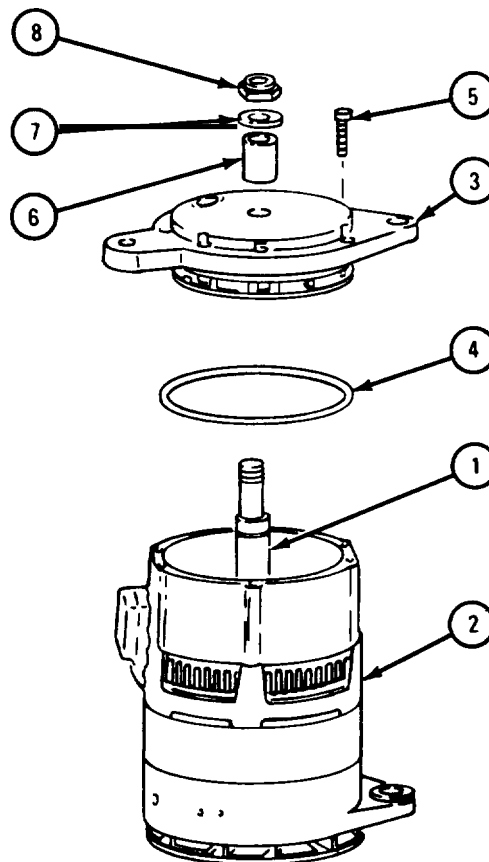
TA103548

g.Replacement.

FRAME 1

1. Hold rotor (1) and housing (2).
2. Press drive end bell (3) and preformed packing (4) onto rotor shaft (1).
3. Put in six screws (5).
4. Put on spacer (6), guard washer (7) and nut (8).
5. Turn rotor shaft (1) and check that there is no binding or scraping.
6. If there is any binding or scraping, do steps 1 through 5 again.

END OF TASK



TA 103549

2-9. END HOUSING AND ROTOR ASSEMBLY .

TOOLS: No special tools required

SUPPLIES : End housing preformed packing

Lip seal (2)

Sleeve seal

Ball bearing and roller bearing grease, MIL-G-18709

PERSONNEL: One

EQUIPMENT CONDITION : Generator removed from vehicle, pulley removed from generator.

a. Preliminary Procedures.

(1) Clean generator before disassembly. Refer to para 1-3.

(2) Remove drive end bell and regulator assembly. Refer to para 2-8.

(3) Remove fan and hub assembly. Refer to para 2-7.

Removal.

FRAME 1

1. Take out six screws (1) .

NOTE

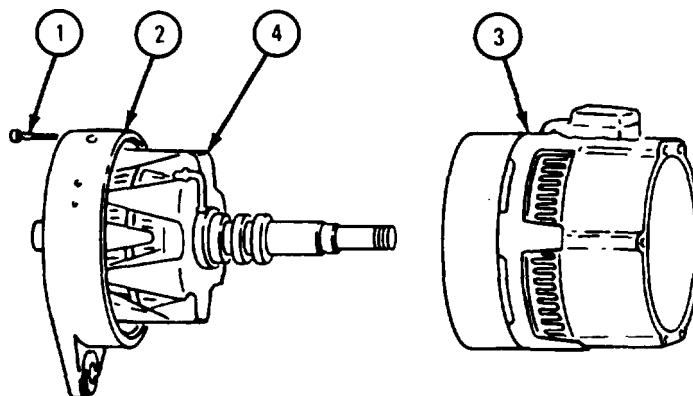
Scribe a mark from end housing (2) to intermediate housing (3) so that housings can be put back the same way.

2. Take end housing (2) and rotor (4) assembly out of intermediate housing (3).

NOTE

When rotor (4) is taken out, brushes will fall out at drive end of intermediate housing (3). Take out brushes.

END OF TASK



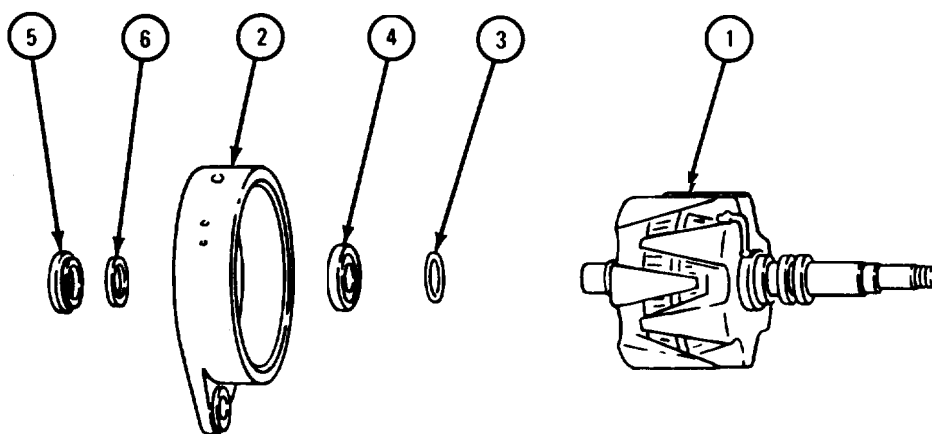
TA103550

c. Disassembly.

FRAME 1

1. Pull rotor (1) from end housing (2).
2. Take out seal (3) and bearing (4). Throw away seal.
3. Take out seal sleeve (5) and seal (6). Throw away seal.

END OF TASK



TA103551

d. Cleaning There are no special cleaning procedures needed. Refer to cleaning procedures given in para 1-3.

e. Inspection and Repair.

(1) Inspection.

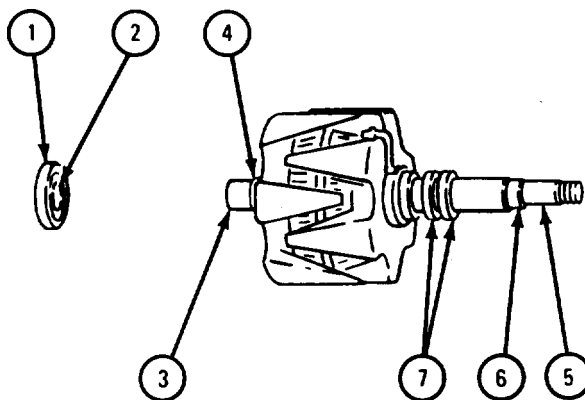
FRAME 1

NOTE

If bearing is not within limits given in table 2-3, get a new bearing. If rotor is not within limits given in table 2-3, generator is nonrepairable.

1. Measure bearing outside diameter (1).
2. Measure bearing inside diameter (2).
3. Measure rotor shaft outside diameter (3) at far end.
4. Measure bearing seat outside diameter (4) at far end of rotor shaft.
5. Measure rotor shaft outside diameter (5) at drive end.
6. Measure bearing seat outside diameter (6) at drive end of rotor shaft.
7. Measure slipring outside diameters (7).

GO TO FRAME 2



TA103552

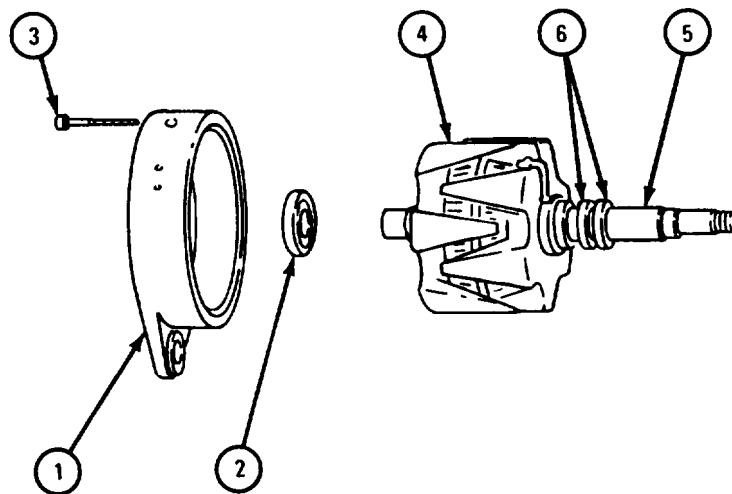
Table 2-3. End Housing and Rotor Assembly Wear Limits

| Index Number | Item /Point of Measurement | Size and Fit of New Parts (inches) | Wear Limits (inches) |
|--------------|---|------------------------------------|----------------------|
| 1 | Outside diameter of drive end bearing | 2.0470 to 2.0475 | None |
| 2 | Inside diameter of drive end bearing | 0.7874 to 0.7870 | None |
| 3 | Outside diameter of far end of shaft | 0.6255 to 0.6250 | None |
| 4 | Outside diameter of bearing seat at far end | 0.7878 to 0.7875 | None |
| 5 | Outside diameter of drive end of shaft | 0.6690 to 0.6684 | None |
| 6 | Outside diameter of bearing seat at drive end | 0.7874 to 0.7871 | None |
| 7 | Outside diameter of sliprings | 1.317 to 1.307 | 1.267 |

FRAME 2

1. Check that drive end bell (1) has no cracks, warping or other damage. If drive end bell is damaged, generator is nonrepairable.
2. Check drive end bell bearing (2). Refer to TM 9-214. Get a new bearing if it is damaged or worn.
3. Check that screws (3) are not bent or broken and that they have no damaged threads. If screws are damaged, get new ones.
4. Check that rotor (4) has no grounds by using a multimeter and touching one test probe to rotor shaft (5) and the other to one slipring (6). Ohmmeter readings must be more than 10,000 ohms. If reading is not more than 10,000 ohms, generator is nonrepairable.
5. Do step 4 again for other slipring (6).
6. Check resistance of sliprings (6) by using a multimeter and touching ohmmeter probes on each slipring (6). Resistance must be between 7.0 and 7.8 ohms. If not within given limits, generator is nonrepairable.

GO TO FRAME 3



TA103553

FRAME 3

NOTE

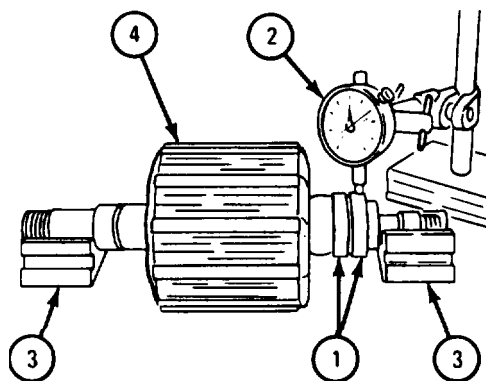
Runout of two sliprings (1) cannot be more than 0.001 inch.

1. Measure slipring (1) runout using a dial indicator (2) and V-blocks (3) as shown in view A. Set dial indicator on one slipring, turn rotor (4) and note reading on dial indicator as rotor turns.
2. Do step 1 again for other slipring (1).
3. Check rotor (4) shaft for straightness using a dial indicator (2) as shown in view B. Set the dial indicator on rotor shaft, turn rotor, and note reading on dial indicator.

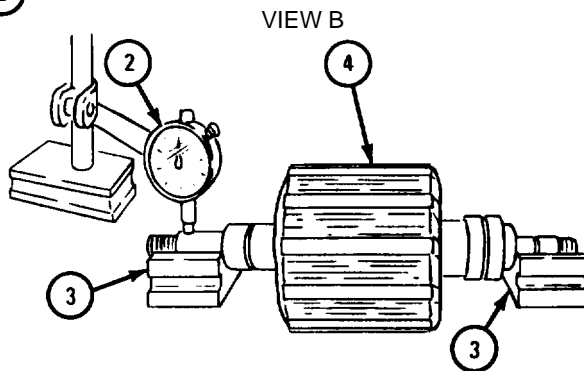
NOTE

If reading on dial indicator (2) varies as rotor (4) turns, shaft is bent and generator is nonrepairable.

END OF TASK



VIEW A



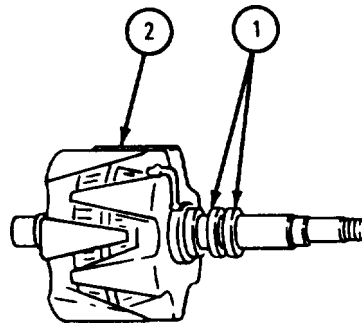
VIEW B

TA103554

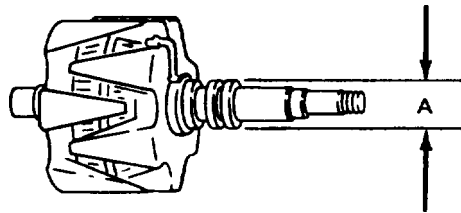
FRAME 1

1. If runout of sliprings (1) was more than 0.001 inch, send rotor (2) to machine shop to have sliprings turned down. See figure 2-3.

END OF TASK



TA103555



TA103556

| Index | Item /Point of Measurement | Size and Fit of New Parts (inches) | Wear Limits (inches) |
|-------|-------------------------------|--|-------------------------|
| A | Outside diameter of sliprings | 0.920 to 0.930 | 0.880 |

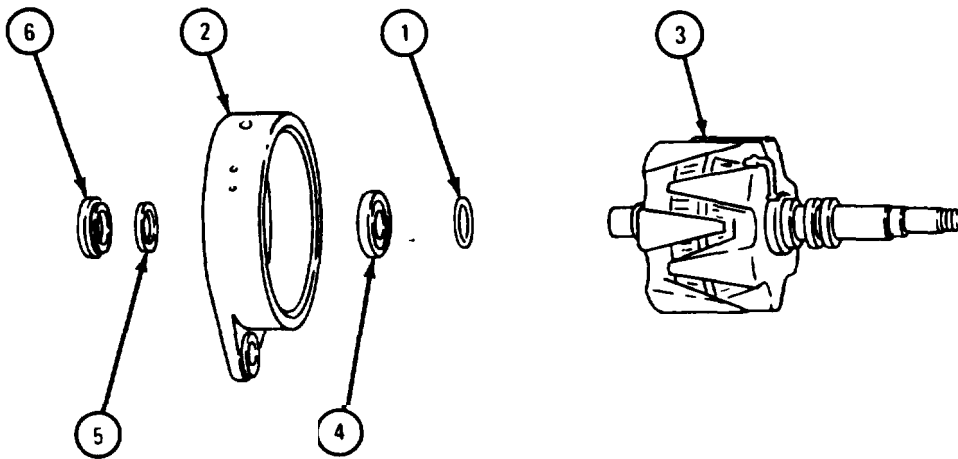
Figure 2-3. Slipring (Model 3002AC) Machining Allowable Wear Limits

f. Assembly.

FRAME 1

1. Put seal (1) into bore of end housing (2) with smooth side of seal toward drive end of generator. Put grease in cavity behind seal.
2. Slide end housing (2) onto short side of shaft of rotor (3).
3. Hold rotor (3) and press bearing (4) into bore of end housing (2) and onto shaft of rotor (3). Put grease around bearing.
4. Put seal (5) and sleeve seal (6) into end housing (2).

END OF TASK



TA103557

g. Replacement.

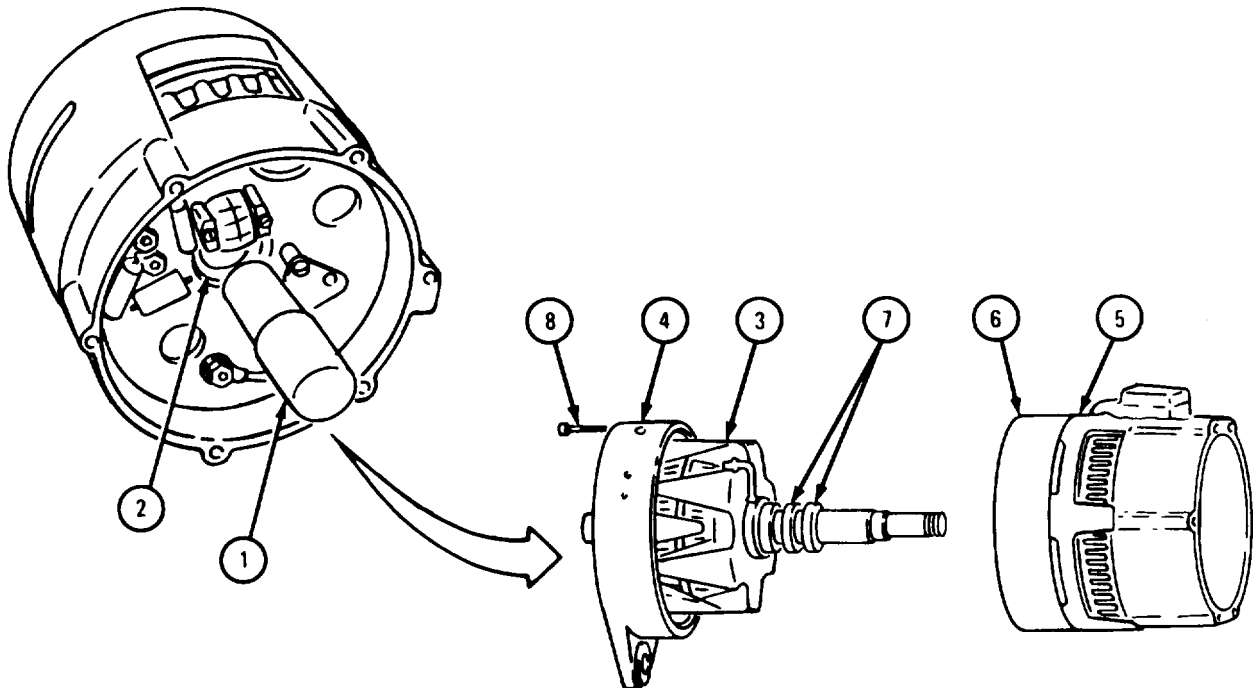
FRAME 1

NOTE

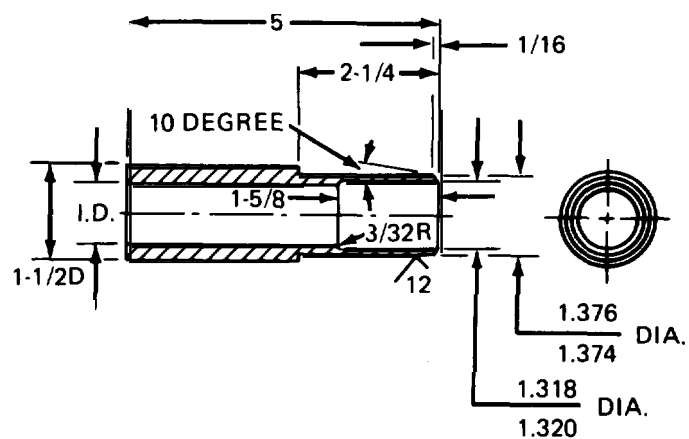
Have machine shop make fabricated installing tool (1).
Refer to figure 2-4.

1. Using installing tool (1), place tapered end of tool into lip seals (2) through drive end of housing. Be sure that tool surface has no nicks or burrs.
2. Put rotor (3) and end housing (4) assembly into housing (5) and stator (6) assembly so that sliprings (7) enter recess in end of installing tool (1).
3. Carefully slide in rotor (3), forcing out installing tool (1) as rotor shaft goes in.
4. Align scribe marks and put in six screws (8).

GO TO FRAME 2



TA103558



MATERIAL 1-1/2 O. D. STEEL TUBING

NOTE: ALL DIMENSIONS SHOWN ARE IN INCHES

TA 103559

Figure 2-4. Rotor Assembly (Model 3002AC) Installing Tool Fabrication Instructions

FRAME 2

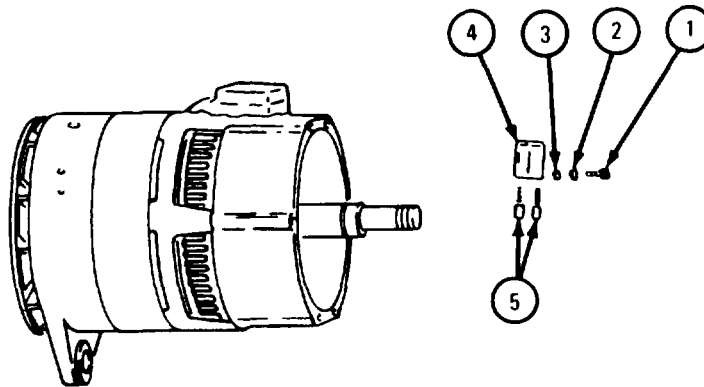
1. Take out two screws (1), lockwashers (2), and guard washers (3) from brush holder (4).
2. Put two brushes (5) into brush holder (4) and put in two guard washers (3), lockwashers (2), and screws (1).

NOTE

Follow-on Maintenance Action Required:

1. Replace fan and hub assembly. Refer to para 2-7.
2. Replace drive end housing. Refer to para 2-8.

END OF TASK



NOTE : PARTS WITHOUT CALLOUTS ARE SHOWN
ONLY FOR REFERENCE PURPOSES.

TA103560

2-10. HOUSING AND STATOR ASSEMBLY.

TOOLS : No special tools required

SUPPLIES : Electrical tape, MIL-T-50886
Housing seal
Housing lip seal
Tags

PERSONNEL: One

EQUIPMENT CONDITION : Generator removed from vehicle, pulley removed from generator.

a. Preliminary Procedures.

- (1) Clean outside of generator before disassembly. Refer to para 1-3.
- (2) Remove drive end bell. Refer to para 2-8.
- (3) Remove fan and hub assembly. Refer to para 2-7.
- (4) Remove end housing. Refer to para 2-9.

Disassembly.

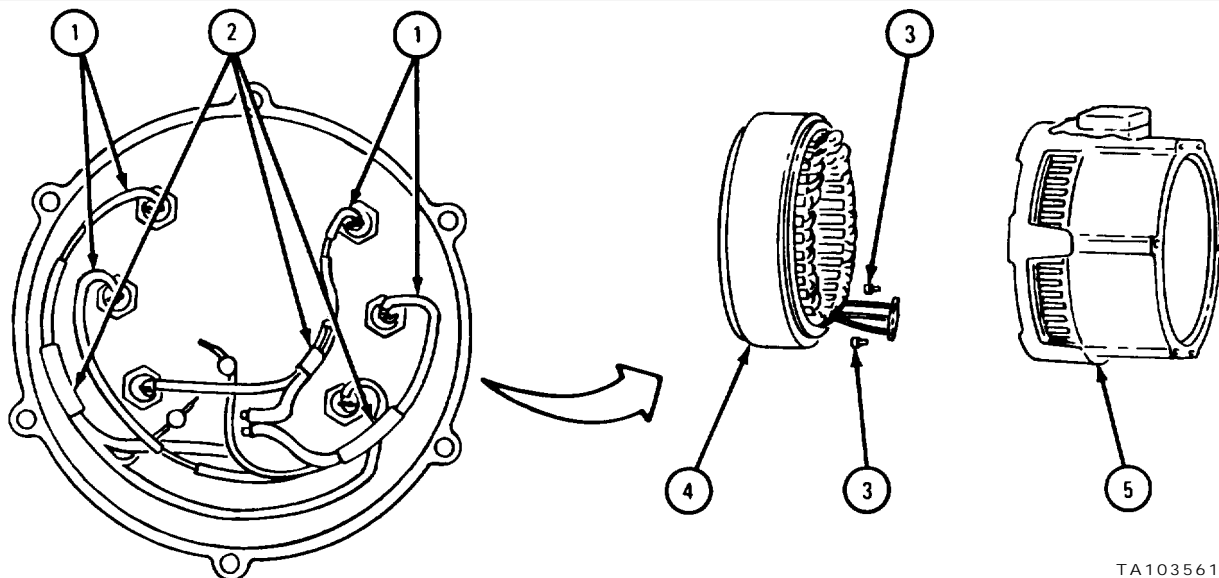
FRAME 1

NOTE

If working on early model generator, do frame 1.
If working on late model generator, go to frame 2.

1. Tag all leads (1) so that they can be put back the same way.
2. Unsolder three splice connections (2).
3. Take out two screws (3) and take stator (4) away from housing (5).

GO TO FRAME 3

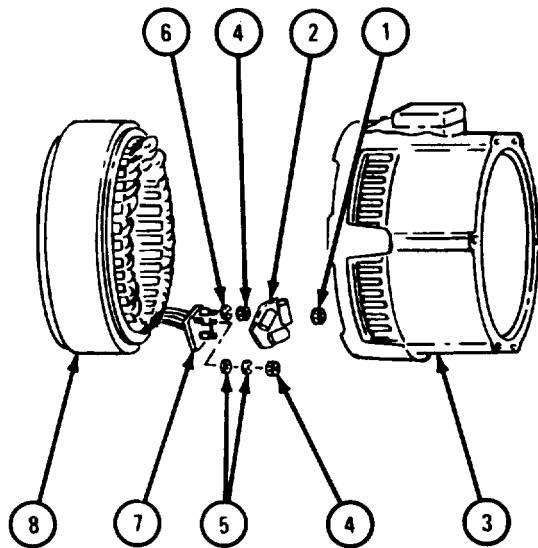


TA103561

FRAME 2

1. Take off three nuts (1).
2. Take out capacitor panel (2).
3. Tag all leads in housing (3).
4. Take off five nuts (4), six flat washers (5), and two lockwashers (6).
5. Take all leads off stator terminal (7) and take stator (8) away from housing (3).

GO TO FRAME 3

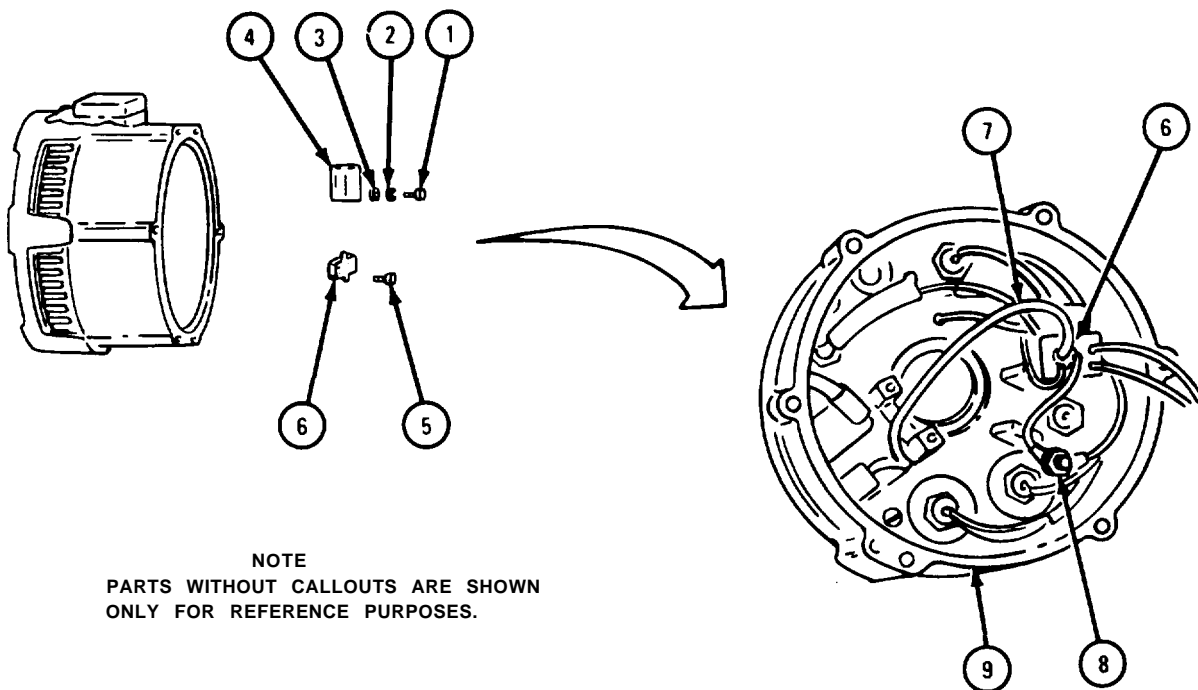


TA103562

FRAME 3

1. Take out two screws (1), lockwashers (2), and guard washers (3) from brush holder (4).
2. Take out two screws (5) from connector socket (6).
3. Unsolder leads from brush holder (4) at connector socket (6) and take out brush holder.
4. Unsolder capacitor lead (7) at connector socket (6).
5. Take off nut and lockwasher (8).
6. Take connector socket (6) out of housing (9).

GO TO FRAME 4



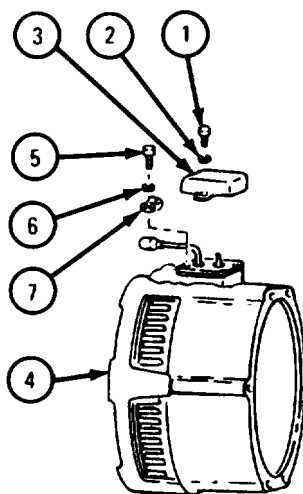
NOTE
PARTS WITHOUT CALLOUTS ARE SHOWN
ONLY FOR REFERENCE PURPOSES.

TA103563

FRAME 4

1. Take out two screws (1) and lockwashers (2).
2. Take cover (3) off housing (4).
3. Take out four screws (5) and lockwashers (6) and clamp (7).

GO TO FRAME 5

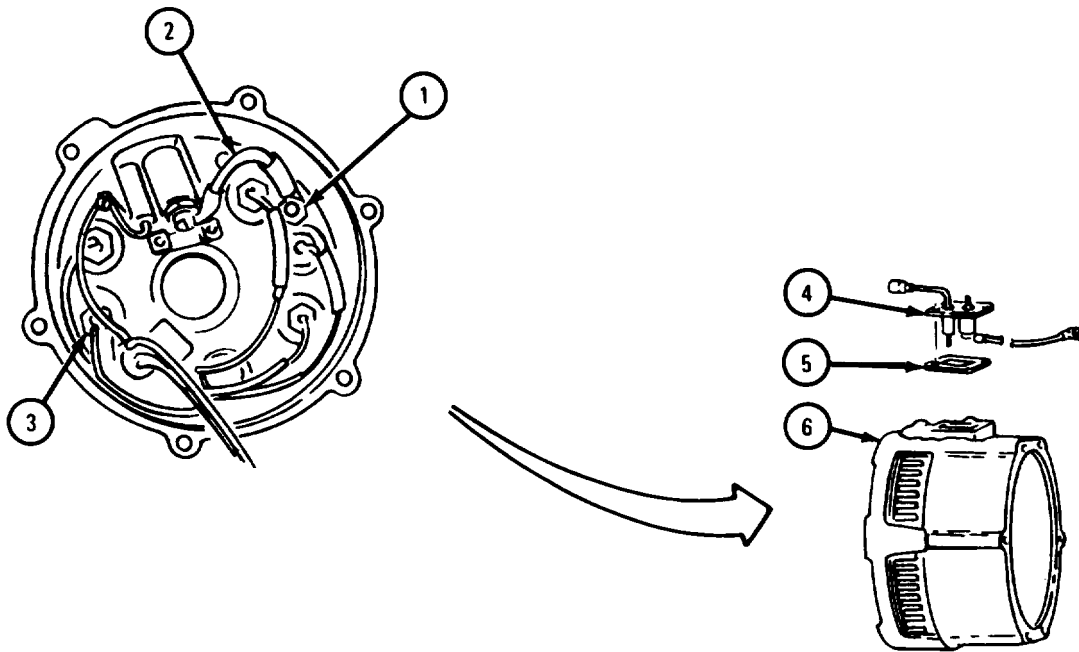


TA103564

FRAME 5

1. Take off nut and lockwasher (1) and capacitor lead (2).
2. Take off nut (3).
3. Take capacitor assembly (4) and gasket (5) from housing (6).

GO TO FRAME 6



TA103565

FRAME 6

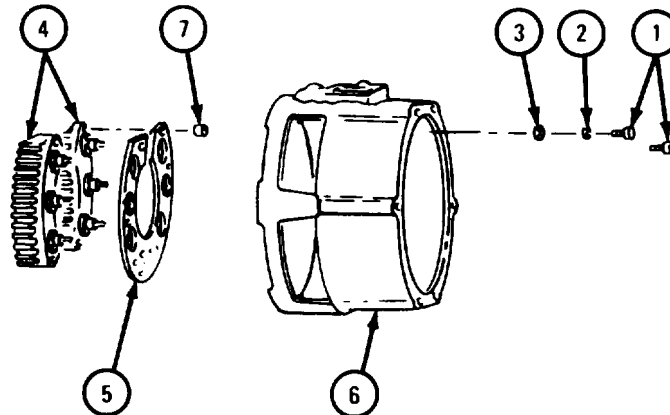
1. Take out four screws (1) and guard washers (2), and three insulator washers (3).

NOTE

Early model generator has two insulator mounts (5).

2. Take two rectifiers (4) and insulator mount (5) from housing (6).
3. Take out three bushings (7) from housing (6).

GO TO FRAME 7

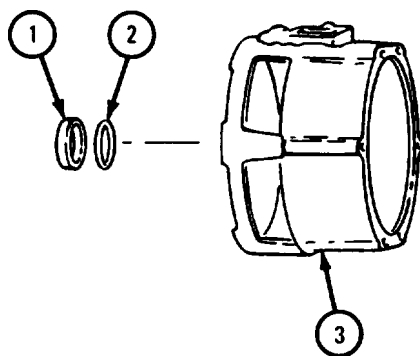


TA103566

FRAME 7

1. Take seal (1) and lip seal (2) out of housing (3). Throwaway seals.

END OF TASK



TA103567

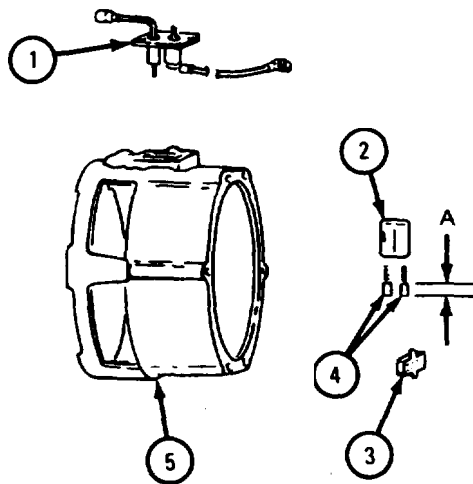
c. Cleaning. There are no special cleaning procedures needed. Refer to cleaning procedures given in para 1-3.

d. Inspection and Repair.

FRAME 1

1. Check that capacitor assembly (1), brush holder (2), and connector socket (3) are not cracked and that they have no loose leads or corroded terminals. Throw away damaged parts and get new parts.
2. Check that brushes (4) are not cracked or oil soaked and that they have no loose leads. Throw away brushes if they are damaged.
3. Measure distance A on brushes (4). Brush length must be at least 1/4 inch. Throw away brushes if they are worn past limit.
4. Check that housing (5) is not cracked or warped. If housing is cracked or warped, generator is nonrepairable.

GO TO FRAME 2

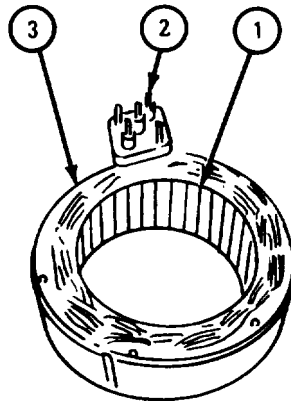


TA103568

FRAME 2

1. Check that stator windings (1) has no loose or frayed insulation.
2. Check that connector (2) has no loose or damaged pins.
3. Check that stator (3) is not grounded by using a multimeter and touching one test probe to housing and the other test probe to each pin or connector (2). Each connection must indicate an open circuit. If circuit is closed, generator is nonrepairable.

GO TO FRAME 3



TA103569

FRAME 3

CAUTION

Do not use a battery or test lamp to make a continuity test. Reverse battery connection will burn out diodes instantly .

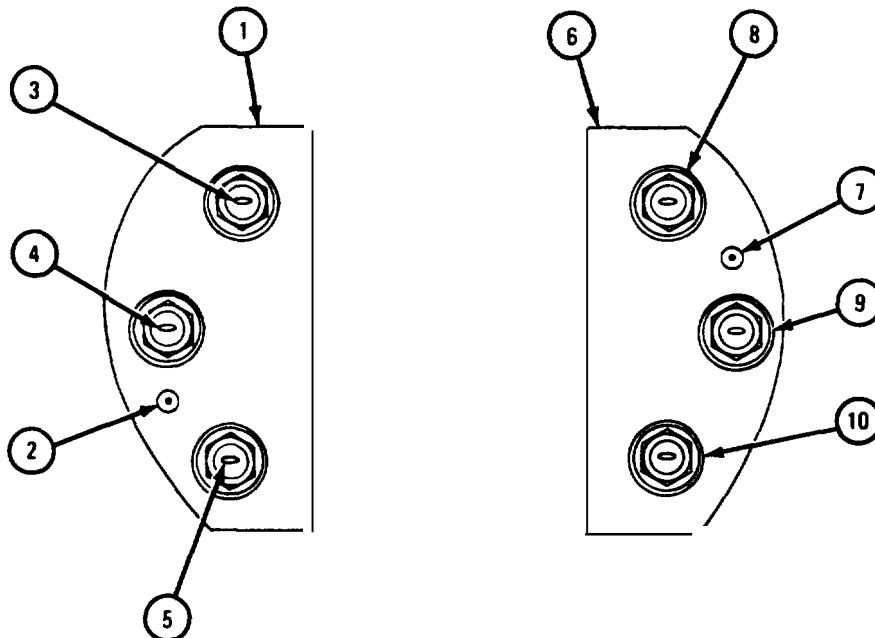
NOTE

On ohmmeters that use one 1 1/2-volt dry cell, low resistance readings will be approximately 20 to 30 ohms. On ohmmeters that use a 3-volt dry cell, low resistance readings will be approximately 10 to 15 ohms.

Positive rectifier has a coating of epoxy for insulation.

1. Check positive rectifier (1) for resistance using a multimeter. Touch positive test probe to checkpoint one (2) and negative test probe to each of three rectifiers (3, 4, and 5), ohmmeter must show low resistance when negative test probe is touched to each rectifier.
2. Check negative rectifier (6) for resistance using a multimeter. Touch negative test probe to checkpoint two (7) and positive test probe to each of three rectifiers (8, 9, and 10). Ohmmeter must show low resistance when positive test probe is touched to each rectifier.
3. Get new parts for those which do not show low resistance.

END OF TASK



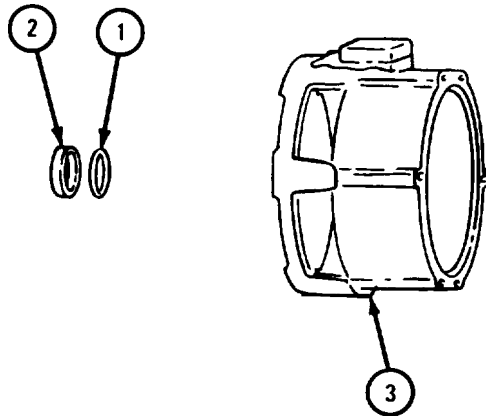
TA103570

e. Assembly.

FRAME 1

1. Put lip seal (1) and seal (2) into bore of housing (3) with smooth face of seal facing drive end of housing.

GO TO FRAME 2



TA103571

FRAME 2

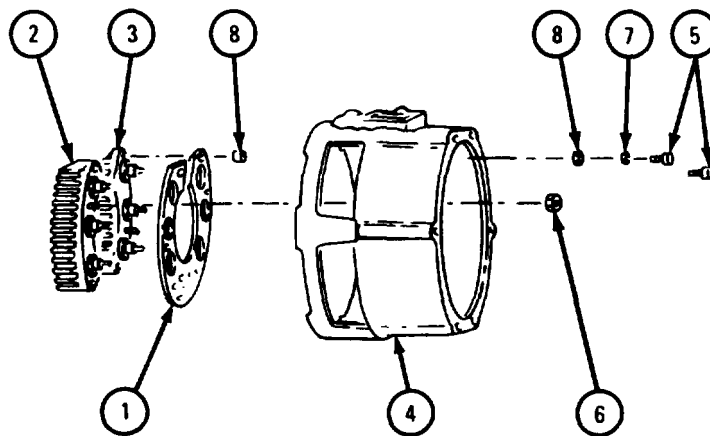
NOTE

Early model generator has two insulator mounts (1).

Positive rectifier (3) has an epoxy coating for insulation.

1. Put insulator mount (1) and two rectifiers (2 and 3) into housing (4) as marked.
2. Put two screws (5) and nut (6) into negative rectifier (2).
3. Put two screws (5) and guard washers (7) and three insulator washers (8) into positive rectifier (3).

GO TO FRAME 3



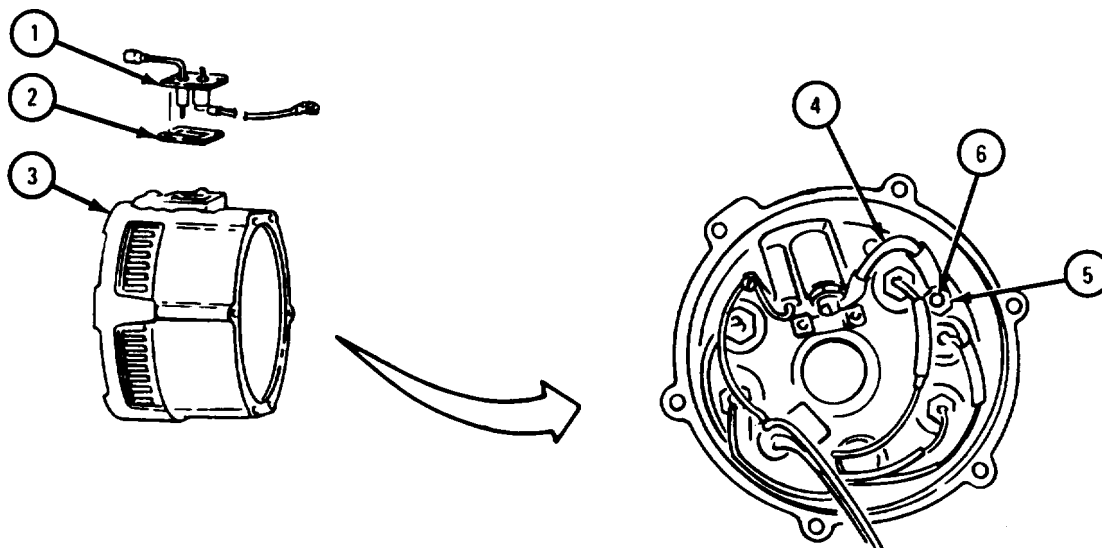
TA103572

FRAME 3

1

1. Put capacitor assembly (1) with gasket (2) in housing (3).
2. Put capacitor lead (4) with nut and lockwasher (5) on positive rectifier stud (6).

GO TO FRAME 4

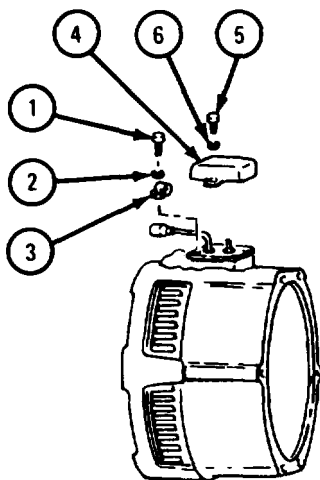


TA103573

FRAME 4

1. Put in four screws (1) and lockwashers (2), and clamp (3).
2. Put on cover (4) and put in two screws (5) and lockwashers (6).

GO TO FRAME 5

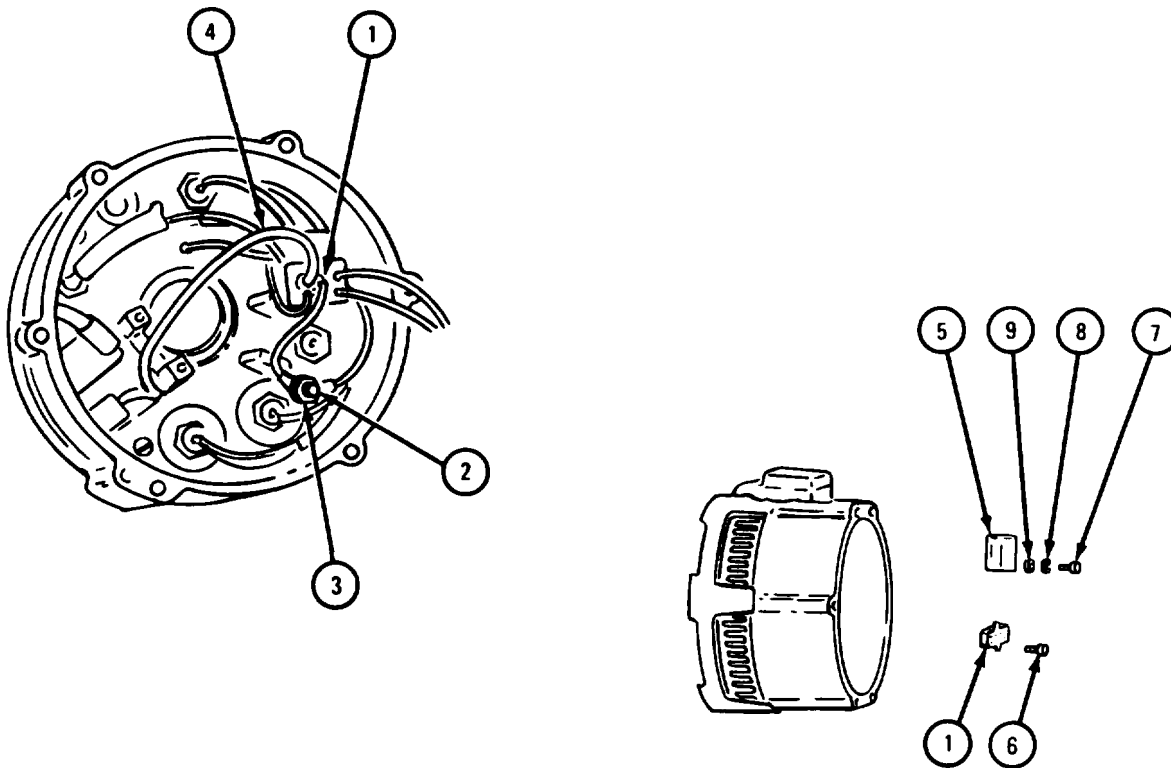


TA103715

FRAME 5

1. Put lead from connector socket (1) on negative rectifier stud (2) with nut and lockwasher (3).
2. Solder capacitor lead (4) to connector socket (1).
3. Solder leads from brush holder (5) to connector socket (1).
4. Put connector socket (1) in place with two screws (6).
5. Put brush holders (5) in place with two screws (7), lockwashers (8), and guard washers (9).

IF WORKING ON EARLY MODEL GENERATOR, GO TO FRAME 6.
IF WORKING ON LATE MODEL GENERATOR, GO TO FRAME 7



TA103574

FRAME 6

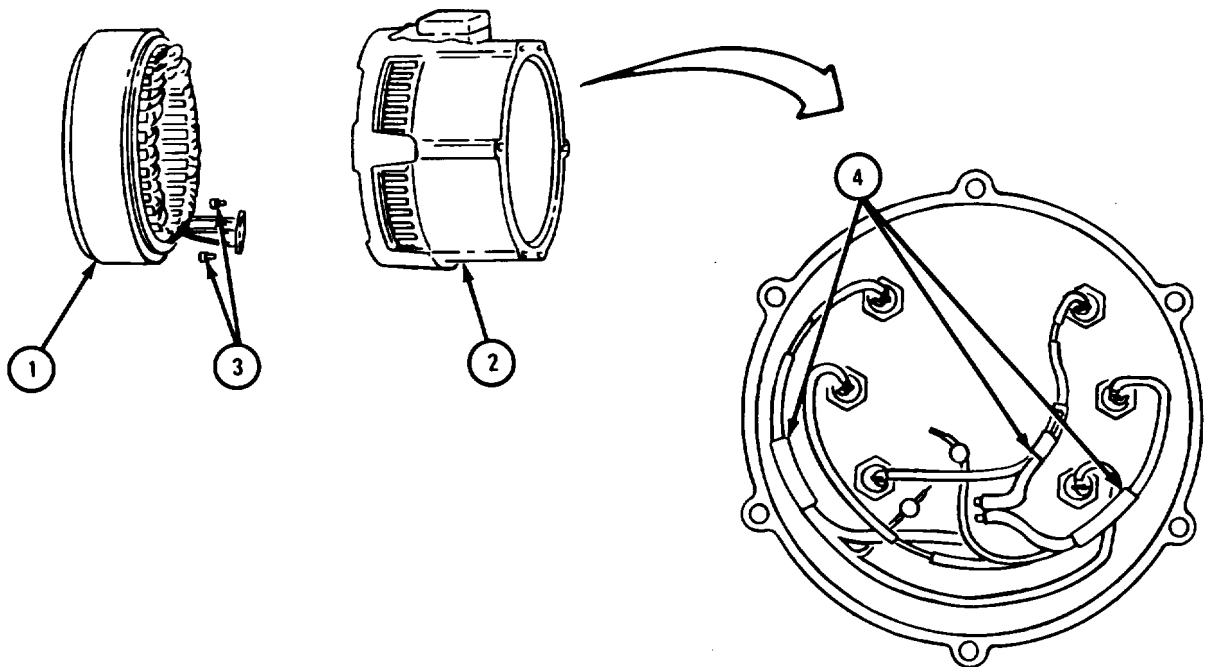
1. Align stator (1) to housing (2) and put in two screws (3).
2. Solder three splice connections (4) and tape over solder.

NOTE

Follow-on Maintenance Action Required:

1. Replace end housing and rotor assembly. Refer to para 2-9.
2. Replace fan and hub assembly. Refer to para 2-7.
3. Replace drive end bell. Refer to para 2-8.

END OF TASK



TA103575

FRAME 7

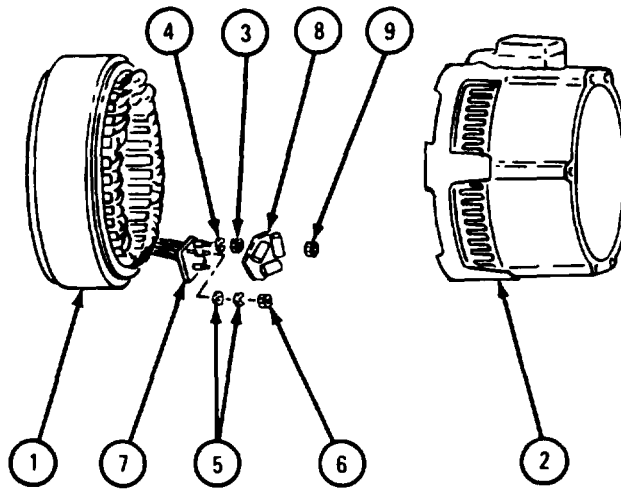
1. Aline stator (1) with housing (2) and put on two nuts (3) and lockwashers (4).
2. Put on three flat washers (5), as tagged, and three flat washers and nuts (6) on stator terminal (7). Take off tags.
3. Put capacitor panel (8) onto stator terminal (7) and put on three nuts (9),

NOTE

Follow-on Maintenance Action Required:

1. Replace end housing and rotor assembly. Refer to para 2-9.
2. Replace fan and hub assembly. Refer to para 2-7.
3. Replace drive end bell. Refer to para 2-8.

END OF TASK



TA103576

Section IV. LEECE-NEVILLE MODEL GENERATOR 3002AD

2-11. END COVER AND REGULATOR ASSEMBLY.

TOOLS: No special tools required

SUPPLIES: End cover preformed packing
Artillery and automotive grease, type GAA, MIL-G-10924

PERSONNEL: One

EQUIPMENT CONDITION: Generator removed from vehicle, pulley removed from generator.

a. Preliminary Procedure. Clean outside of generator before disassembly. Refer to para 1-3.

b. Removal.

FRAME 1

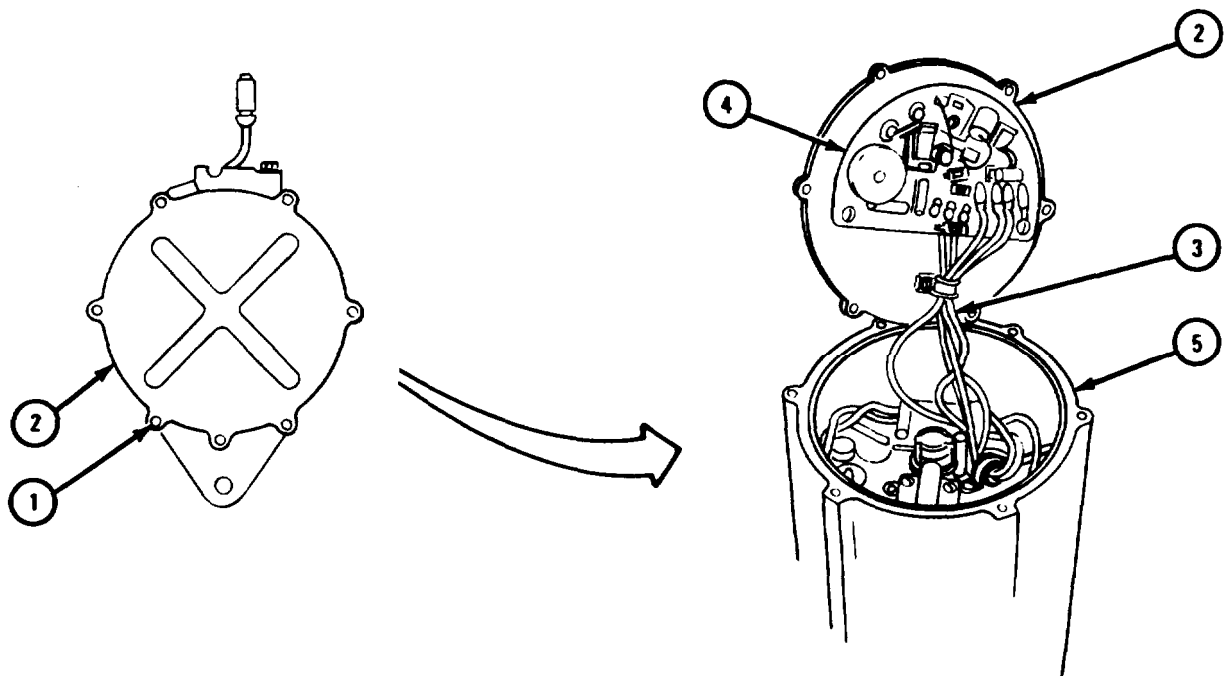
1. Take out six screws (1) from slipring end cover (2).

CAUTION

Be careful not to damage leads (3) going to regulator (4) when lifting end cover (2) away from housing (5).

2. Lift slipring end cover (2) away from housing (5).

GO TO FRAME 2

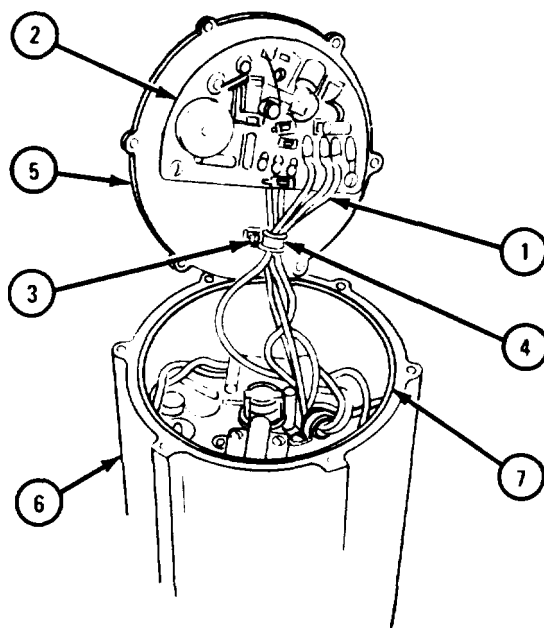


TA103577

FRAME 2

1. Tag five leads (1) going to regulator (2).
2. Unplug leads (1).
3. Take out screw and lockwasher (3) and clamp (4).
4. Take off end cover (5) and regulator (2) assembly from housing (6).
5. Take off and throw away preformed packing (7).

END OF TASK



TA103578

c. Disassembly.

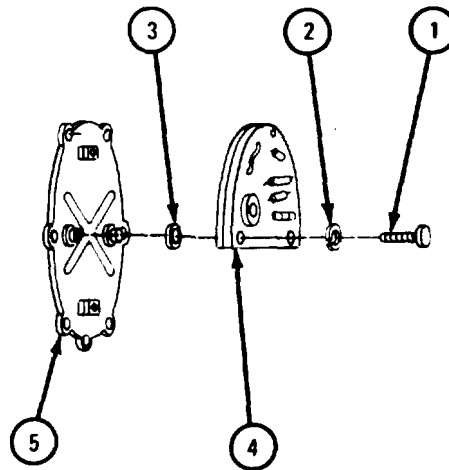
F R A M E 1

1. Take out three screws (1), lockwashers (2), and flat washers (3).
2. Take regulator (4) off end cover (5).

NOTE

Do not take apart regulator (4).

END OF TASK



TA103579

d. Cleaning. There are no special cleaning procedures needed. Refer to cleaning procedures given in para 1-3.

e. Inspection and Repair.

FRAME 1

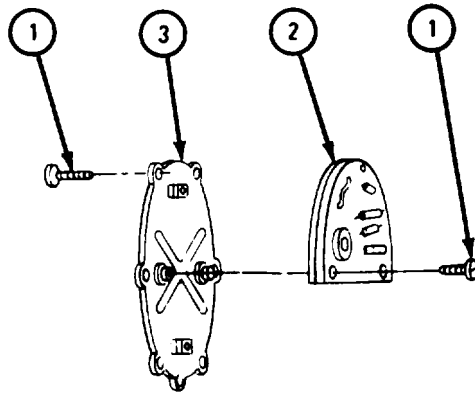
1. Check that all screws (1) are not bent or broken and that threads are not damaged. Get new screws for all damaged ones.
2. Check that regulator (2) is not cracked or damaged and that it has no loose leads. If regulator is damaged, get a new one.

NOTE

Regulator (2) will be tested later.

3. Check that end cover (3) is not cracked, warped or broken and that it has no damaged studs. If end cover is damaged, get a new generator.

END OF TASK

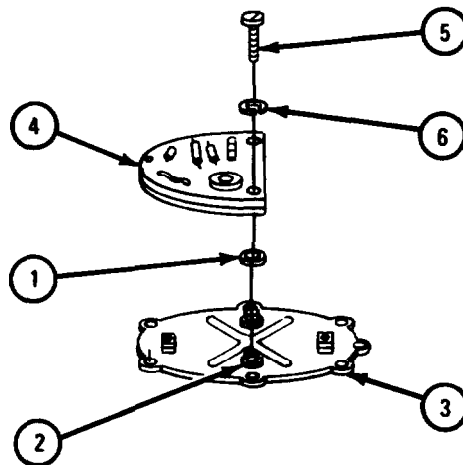


TA103580

f. Assembly.**FRAME 1**

1. Put three flat washers (1) on standoffs (2) of end cover (3).
2. With components of regulator (4) facing away from end cover (3), align three holes and place regulator on standoffs (2).
3. Put in three screws (5) and lockwashers (6).

END OF TASK



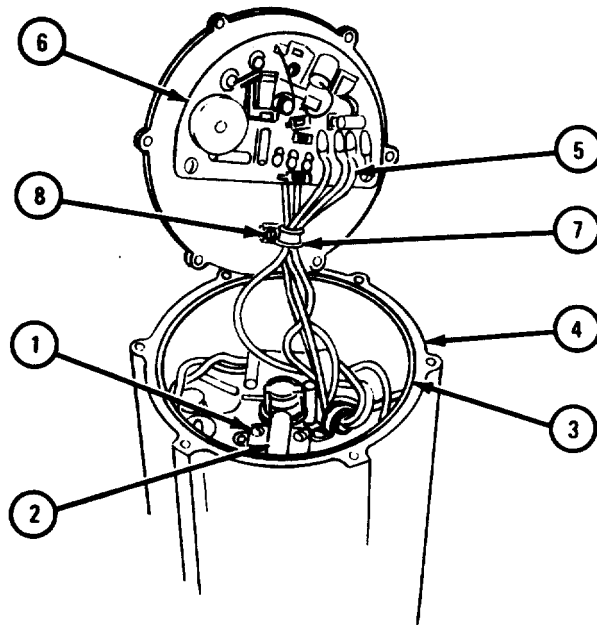
TA 103581

g. Replacement.

FRAME 1

1. If brushes must be replaced, take out two screws, lockwashers, and flat washers (1). Lift brush holder (2) and put brushes into brush holder. Put brush holder back and put in two screws, lockwashers, and flat washers.
- 2* Put a coat of grease on preformed packing (3). Place packing in groove in housing (4) .
3. Plug five leads (5) onto regulator (6) as tagged. Take off tags.
4. Put clamp (7) around leads (5) and put in screw and lockwasher (8).

GO TO FRAME 2



TA 103582

FRAME 2
I

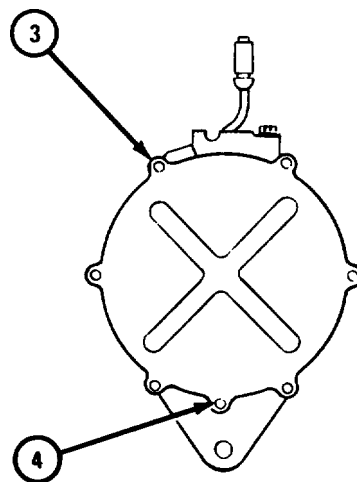
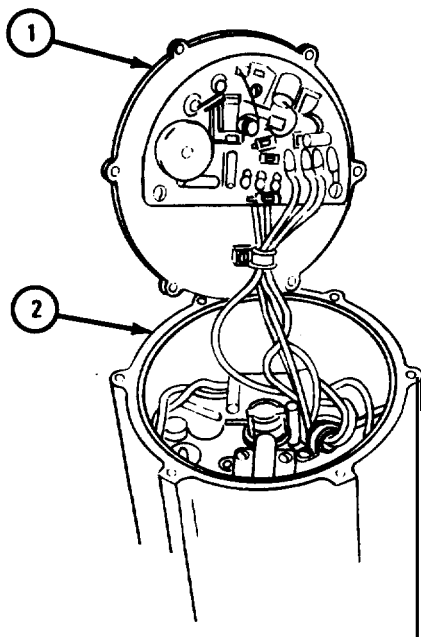
1. Place slipring cover (1) onto housing (2).

NOTE

Make sure that pin (4) is aligned with pin hole in slipring cover (1).

2. Put in six screws (3).

END OF TASK



TA 103583

2-12. DRIVE END BELL AND ROTOR ASSEMBLY.

TOOLS: No special tools required

SUPPLIES: Drive end preformed packing
Bearing retainer preformed packing
Drive end bell seal
Bearing retainer seal
Artillery and automotive grease, type GAA, MIL-G-10924

PERSONNEL: One

EQUIPMENT CONDITION : Generator removed from vehicle, pulley removed from generator.

a. Preliminary Procedures.

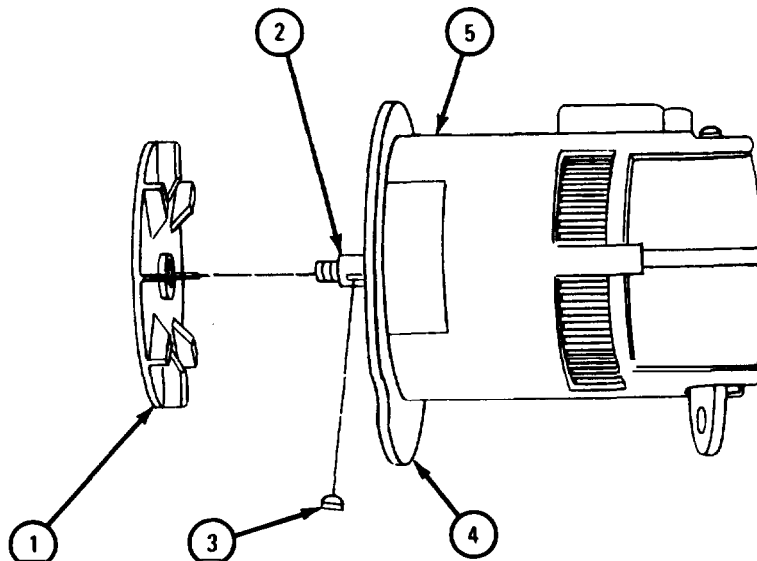
- (1) Clean outside of generator before disassembly. Refer to para 1-3.
- (2) Remove end cover and regulator assembly, Refer to para 2-11.

b. Removal.

FRAME 1

1. Slide fan (1) off rotor shaft (2).
2. Take out woodruff key (3) from rotor shaft (2).
3. Scribe a line across end bell (4) and housing (5).

GO TO FRAME 2



TA 103584

FRAME 2

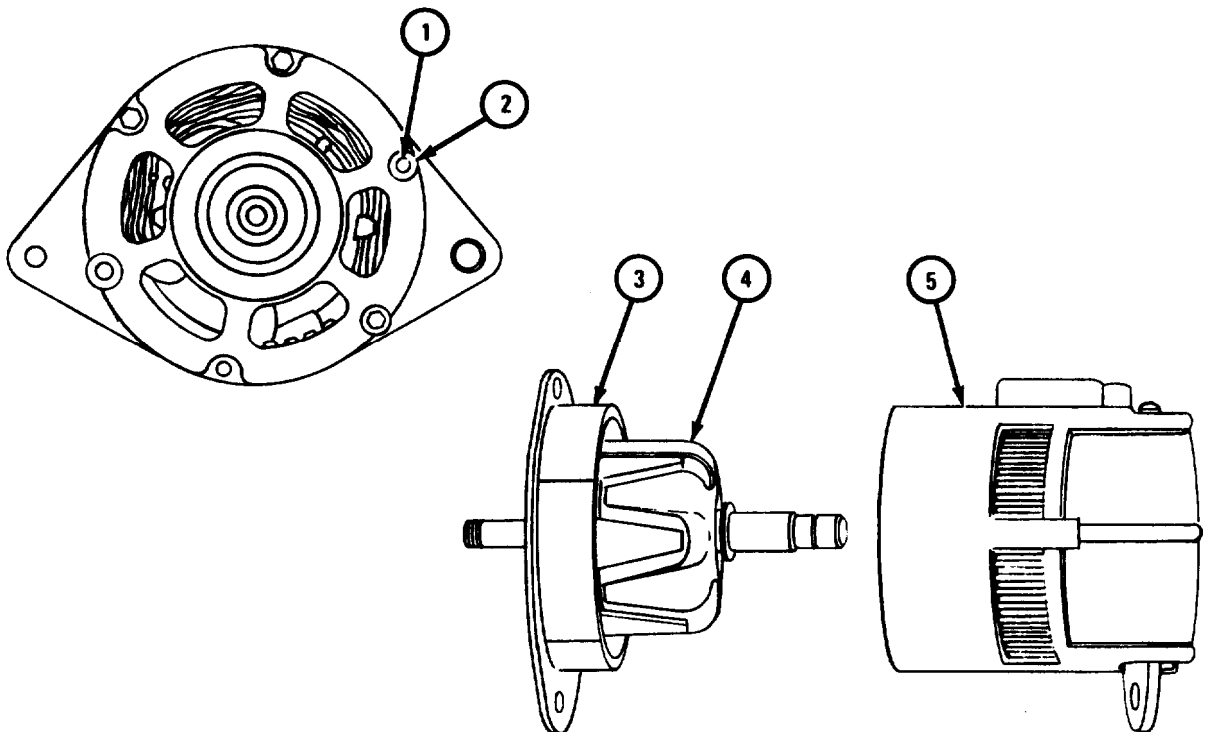
1. Take out six screws (1) and washer (2).

NOTE

When end bell (3) and rotor (4) assembly are taken out of housing (5), brushes will fall out of brush holders at slipring end of housing. Take out brushes.

2. Take end bell (3) and rotor (4) assembly out of housing (5). Tap lightly with a soft mallet if needed.

END OF TASK

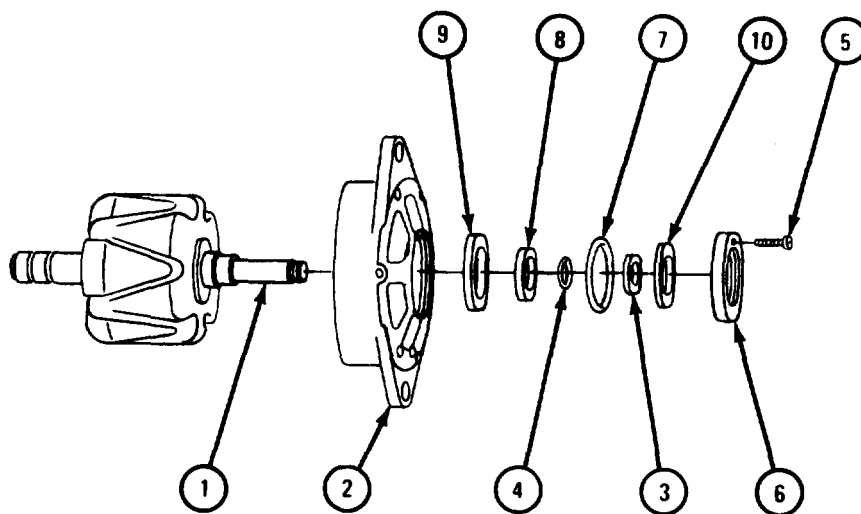


c. Disassembly.

FRAME 1

1. Press rotor shaft (1) out of end bell (2).
2. Take out drive end spacer (3) and preformed packing (4). Throw away packing.
3. Take out four screws (5).
4. Take bearing retainer (6) and preformed packing (7) off end bell (2). Throw away packing.
5. Press bearing (8) and seal (9) out of end bell (2). Throw away seal.
6. Punch seal (10) out of bearing retainer (6). Throw away seal.

END OF TASK



TA 103586

d. Cleaning. There are no special cleaning procedures needed. Refer to cleaning procedures given in para 1-3.

e. Inspection and Repair.

(1) Inspection.

NOTE

Readings for rotor (1) and drive end bell (2) must be within limits given in table 2-4. If readings are not within given limits, generator is nonrepairable.

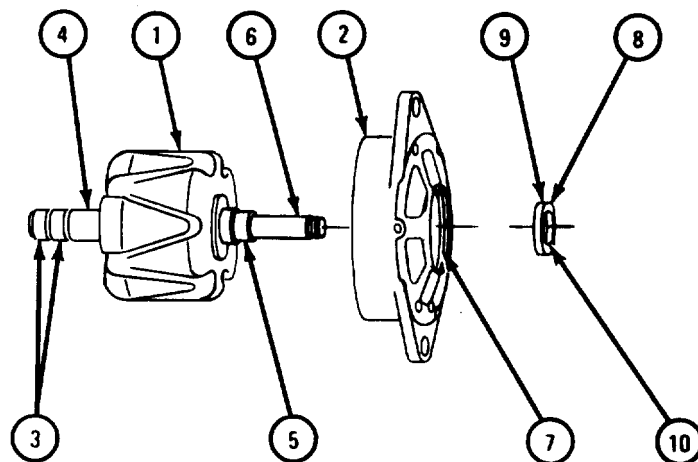
1. Measure outside diameter of sliprings (3).
2. Measure outside diameter of slipring end of shaft (4).
3. Measure outside diameter of drive end of shaft bearing seat (5).
4. Measure outside diameter of drive end of shaft (6).
5. Measure inside diameter of drive end bell bearing bore (7).

NOTE

If bearing (8) is not within limits given in table 2-4, get a new bearing.

6. Measure outside diameter (9) of drive end bearing (8).
7. Measure inside diameter (10) of drive end bearing (8).

GO TO FRAME 2



TA 103587

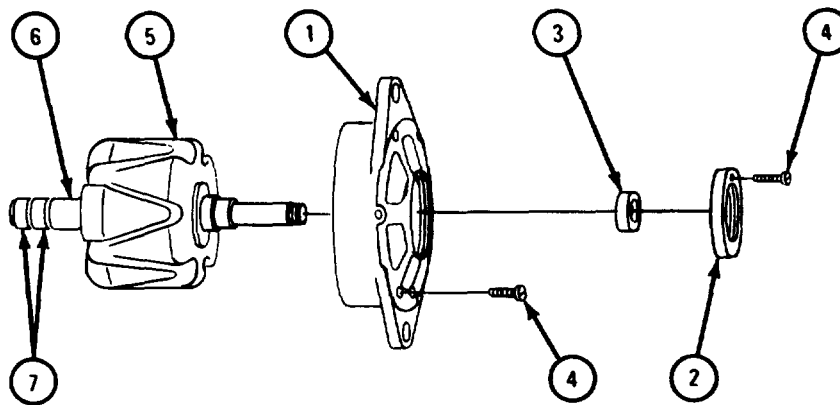
Table 2-4. Drive End Bell and Rotor Wear Limits

| Index Number | Item /Point of Measurement | Size and Fit of New Parts (inches) | Wear Limits (inches) |
|--------------|--|------------------------------------|----------------------|
| 3 | Sliprings outside diameter | 0.920 to 0.930 | 0.880 |
| 4 | Slipring end of shaft outside diameter | 1.000 to 0.9987 | None |
| 5 | Drive end of shaft bearing seat outside diameter | 0.7878 to 0.7875 | None |
| 6 | Drive end of shaft outside diameter | 0.6690 to 0.6684 | None |
| 7 | Drive end bell bearing bore inside diameter | 2.0470 to 2.0475 | None |
| 9 | Drive end bearing outside diameter | 2.0472 to 2.0467 | None |
| 10 | Drive end bearing inside diameter | 0.7874 to 0.7870 | None |

FRAME 2

1. Check that end bell (1) and bearing retainer (2) have no cracks, damage or warping. If damage is found, generator is nonrepairable.
2. Check that drive end bearing (3) is not damaged. Refer to TM 9-214.
3. Check that screws (4) are not bent or broken and that they have no damaged threads. If screws are damaged, get new ones.
4. Using multimeter, check that rotor (5) has no grounds. Touch one test probe to rotor shaft (6) and touch other test probe to one slipring (7) and check that ohmmeter reading is over 10, 000 ohms. If readings is not over 10,000 ohms, get a new generator.
- 5* Do step 4 again for other slipring (7).
6. Using multimeter, check resistance of two sliprings (7). Touch ohmmeter test probes to two sliprings at same time and check that resistance is between 7.0 and 7.8 ohms. If resistance is not within given limits, generator is nonrepairable.

GO TO FRAME 3

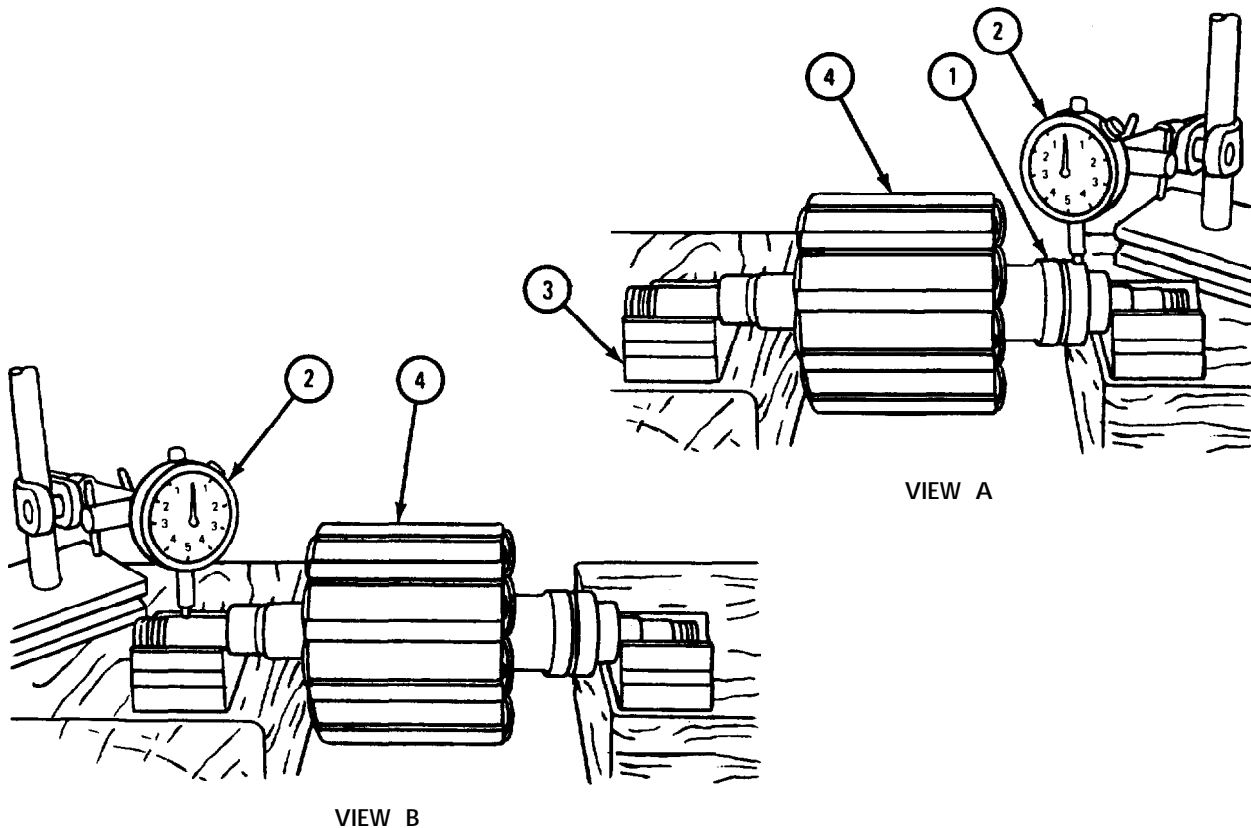


TA 103588

FRAME 3

1. Check that runout of slipring (1) is less than 0.001 inch. Using dial indicator (2) and V-blocks (3) as shown in view A, set dial indicator on slipring, turn rotor (4), and note reading as rotor turns.
2. Do step 1 again for other slipring (1).
3. Check that shaft of rotor (4) is straight. Using a dial indicator (2) as shown in view B, set dial indicator on shaft of rotor, turn rotor and check that reading does not change. If reading changes, generator is nonrepairable.

END OF TASK



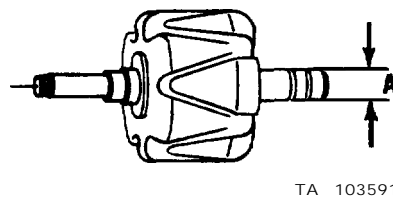
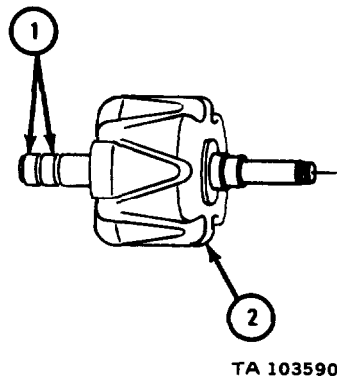
TA 103589

(2) Repair.

FRAME 1

1. If runout of two sliprings (1) is more than 0.001 inch, send rotor (2) to machine shop to have sliprings turned down. See figure 2-5.

END OF TASK



| Index Number | Item /Point of Measurement | Size and Fit of New Parts (inches) | Wear Limits (inches) |
|--------------|------------------------------|------------------------------------|----------------------|
| A | Outside diameter of slipring | 0.920 to 0.930 | 0.880 |

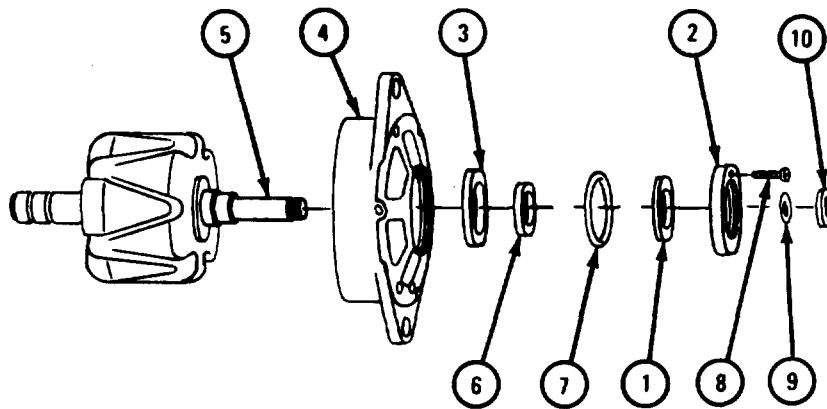
Figure 2-5. Slipring (Model 3002AD) Wear Limits

f. Assembly.

FRAME 1

1. Using hammer and brass punch, put seal (1) into bore of bearing retainer (2) with part number facing out.
2. Using hammer and brass punch, put seal (3) into bore of drive end bell (4) with part number facing in.
3. Slip housing (4) with seal (3) onto rotor shaft (5).
4. Press bearing (6) onto rotor shaft (5) into bore of end bell (4) with part number facing out.
5. Lightly grease preformed packing (7). Put packing in groove of end bell (4).
6. Put bearing retainer (2) on end bell (4) and put in four screws (8).
7. Lightly grease preformed packing (9). Slide packing and spacer (10) onto rotor shaft (5).

END OF TASK



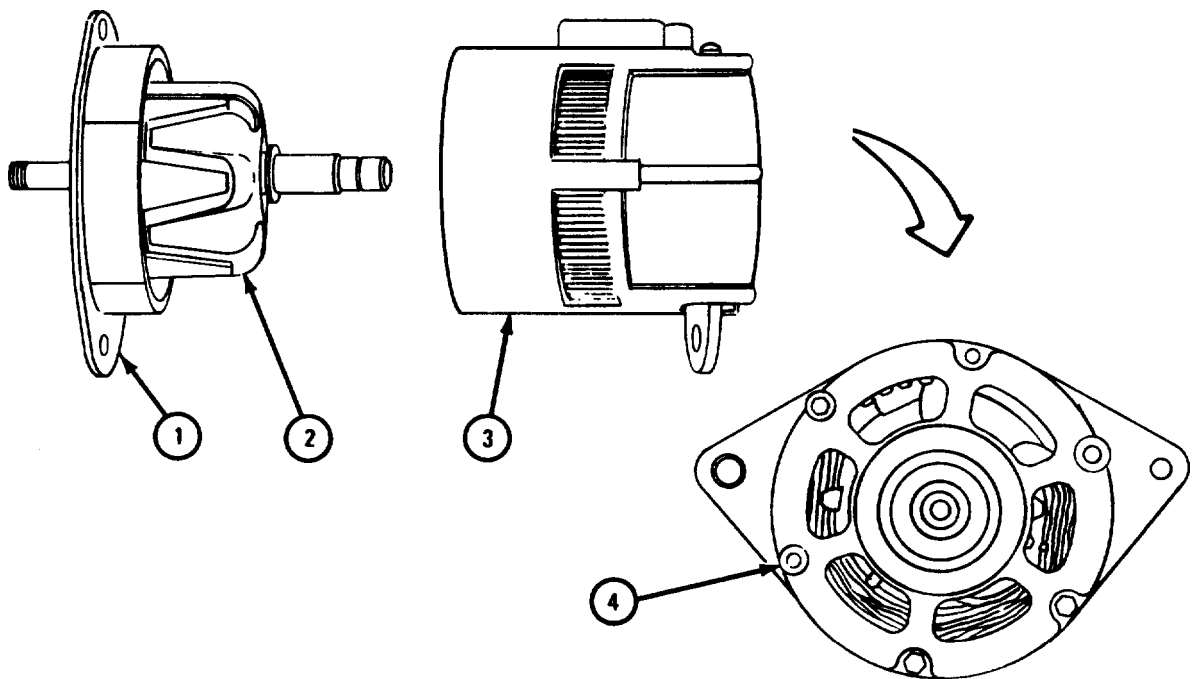
TA 103592

g. Replacement.

FRAME 1

1. Place end bell (1) and rotor (2) assembly in housing (3) and align scribe marks.
2. Put in six screws and washers (4).

GO TO FRAME 2



TA 103593

FRAME 2 1

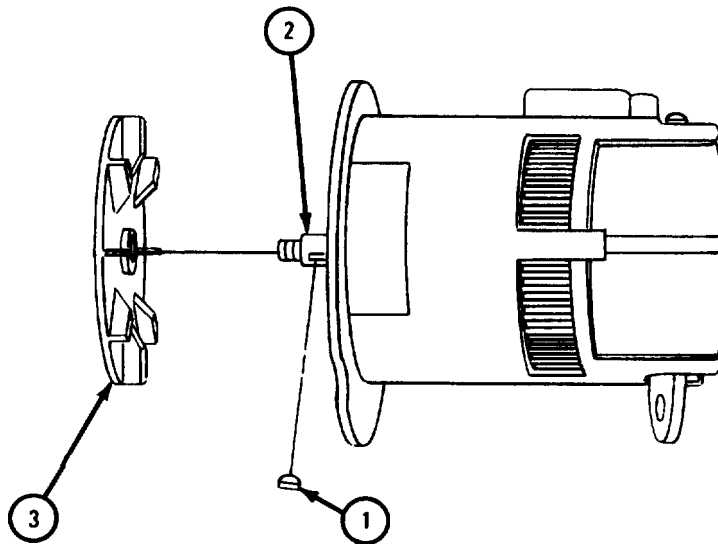
1. Put woodruff key (1) in slot of shaft (2).
2. Put fan (3) onto shaft (2) over woodruff key (1).

NOTE

Follow-on Maintenance Action Required:

Replace end cover and regulator assembly. Refer to para 2-11.

END OF TASK



TA 103594

2-13. HOUSING AND STATOR ASSEMBLY.

TOOLS: No special tools required

SUPPLIES: Teflon seats (2)

Capacitor and terminal assembly gasket

Artillery and automotive grease, type GAA, MIL-G-10924

Tags

PERSONNEL: One

EQUIPMENT CONDITION : Generator removed from vehicle, pulley removed from generator.

a. Preliminary Procedures.

(1) Clean outside of generator before disassembly. Refer to para 1-3.

(2) Remove end cover and regulator assembly. Refer to para 2-11.

(3) Remove drive end bell and rotor assembly. Refer to para 2-12.

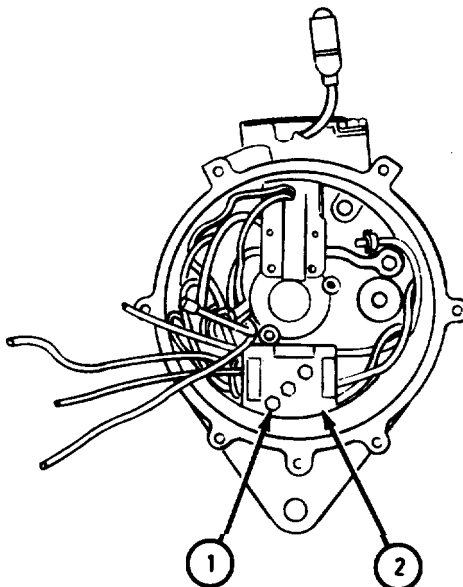
b. Disassemble.

FRAME 1

1. Take off three tenz nuts (1).

2. Take out capacitor panel (2).

GO TO FRAME 2

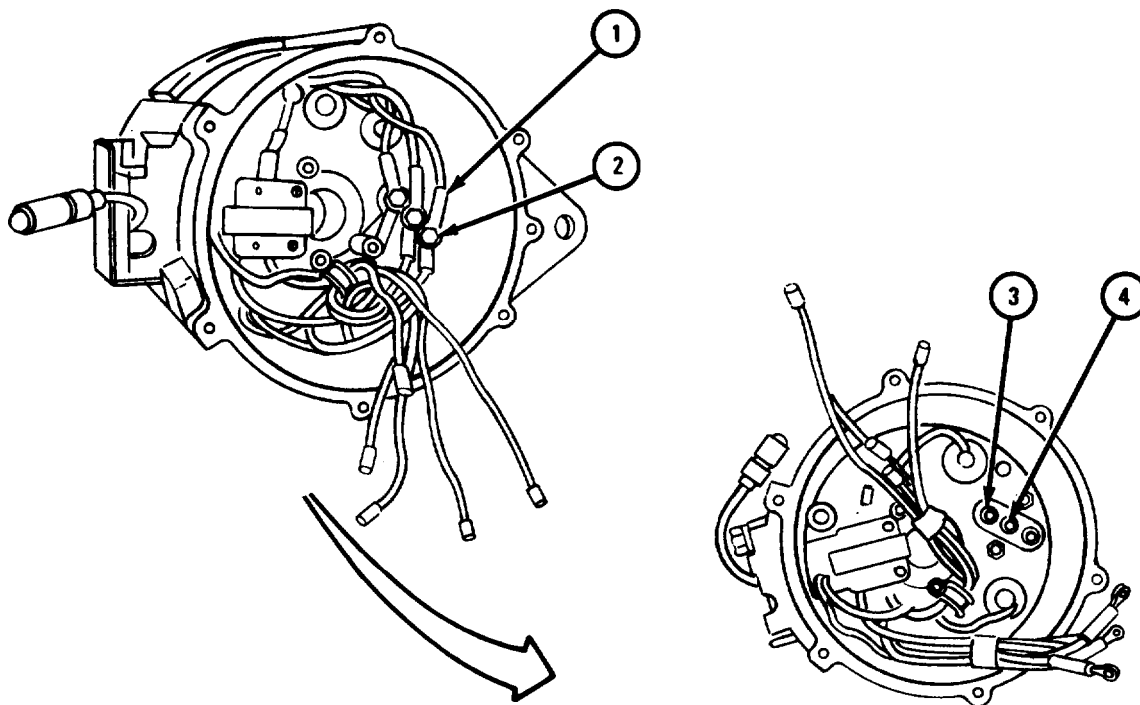


TA 103595

FRAME 2

1. Tag nine leads (1).
2. Take off three nuts (2).
3. Take off nine leads (1).
4. Take three flat washers (3) off stator terminal (4).

GO TO FRAME 3



TA 103596

FRAME 3

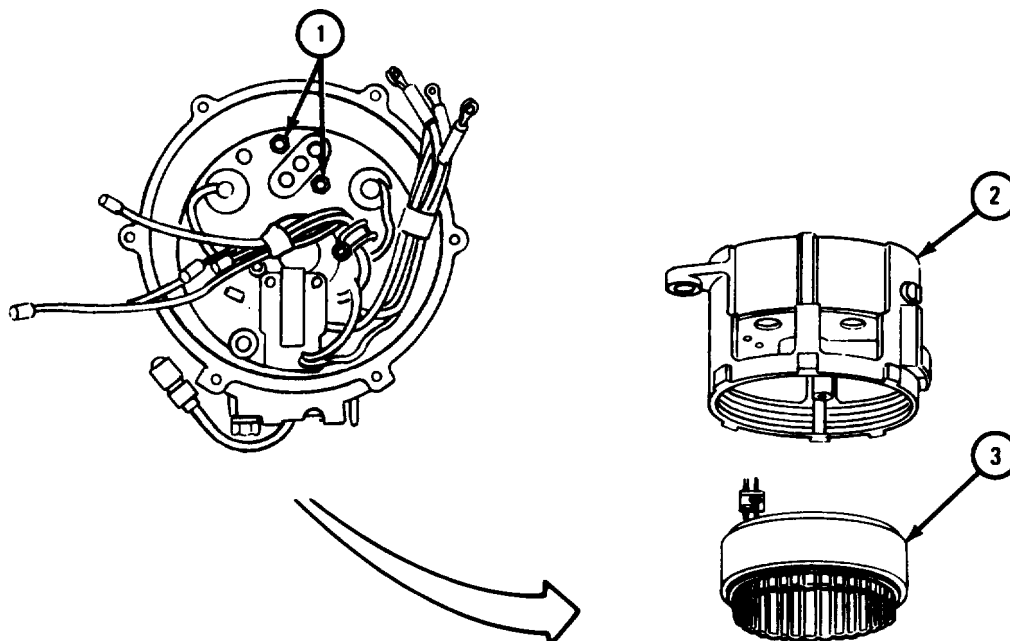
1. Take off two nuts, lockwashers, and flat washers (1).

CAUTION

Be careful not to damage stator terminal when lifting off housing (2). Terminal can be damaged and generator will not work correctly.

2. Lift housing (2) off stator assembly (3).

GO TO FRAME 4

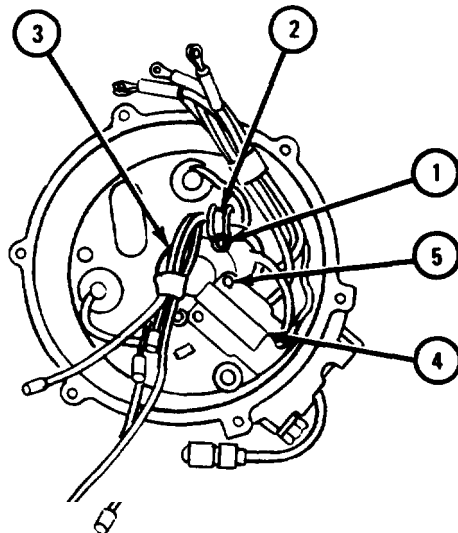


TA 103597

FRAME 4

1. Take out screw and lockwasher (1) and clamp (2).
2. Take out lead (3).
3. Scribe a mark on top of brush holder (4).
4. Take out two screws, lockwashers, and flat washers (5).

GO TO FRAME 5

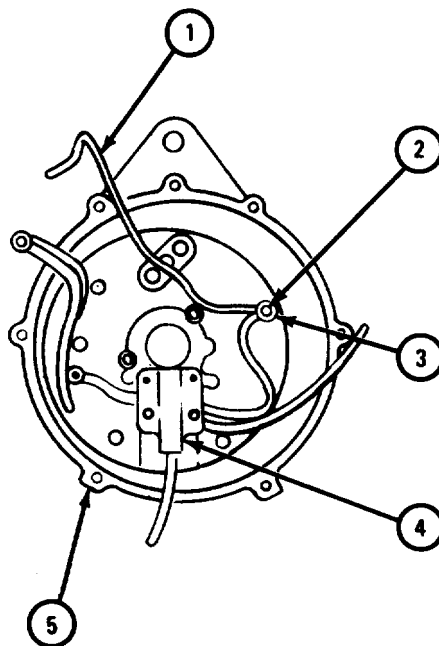


TA 10

FRAME 5

1. Tag two leads (1) on negative heat sink stud (2).
2. Take off nut, lockwasher, and flat washer (3).
3. Take off two leads (1) from negative heat sink stud (2).
4. Take brush holder (4) out of housing (5).

GO TO FRAME 6

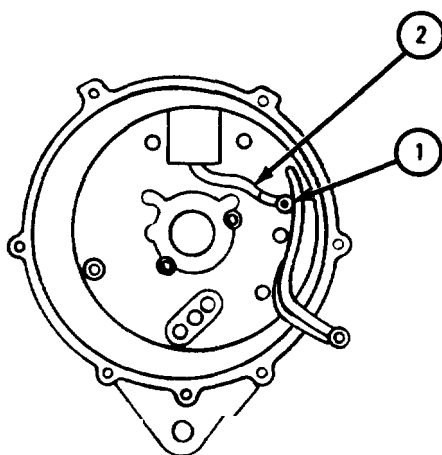


TA 103599

FRAME 6

1. Take off nut, lockwasher, and flat washer (1).
2. Tag lead (2) and take it off.

GO TO FRAME 7

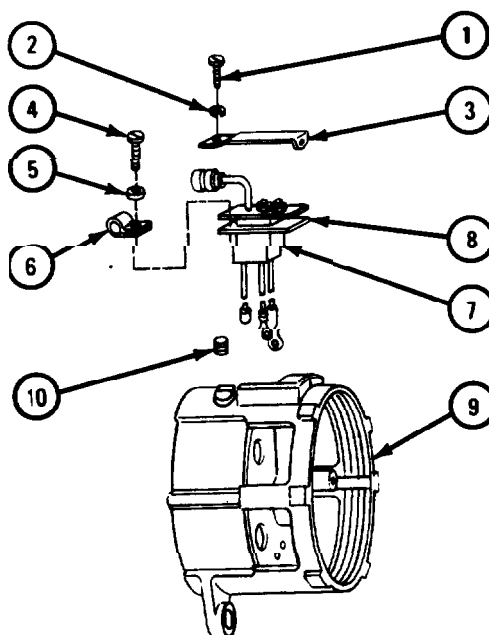


TA 103600

FRAME 7

1. Take out two screws (1) and lockwashers (2).
2. Take off cover (3).
3. Take out four screws (4) and lockwashers (5) and one clamp (6).
4. Take capacitor and terminal assembly (7) and gasket (8) out of housing (9).
Throw away gasket.
5. Take pipe plug (10) out of housing (9).

GO TO FRAME 8

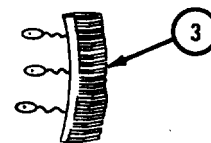
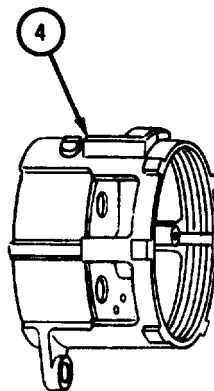
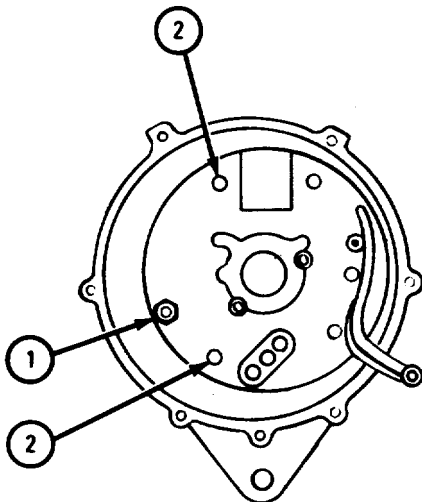


TA 103601

FRAME 8

1. Take off nut (1) .
2. Take out two screws (2).
3. Pull negative rectifier (3) out of drive end of housing (4).

GO TO FRAME 9



TA 103602

FRAME 9

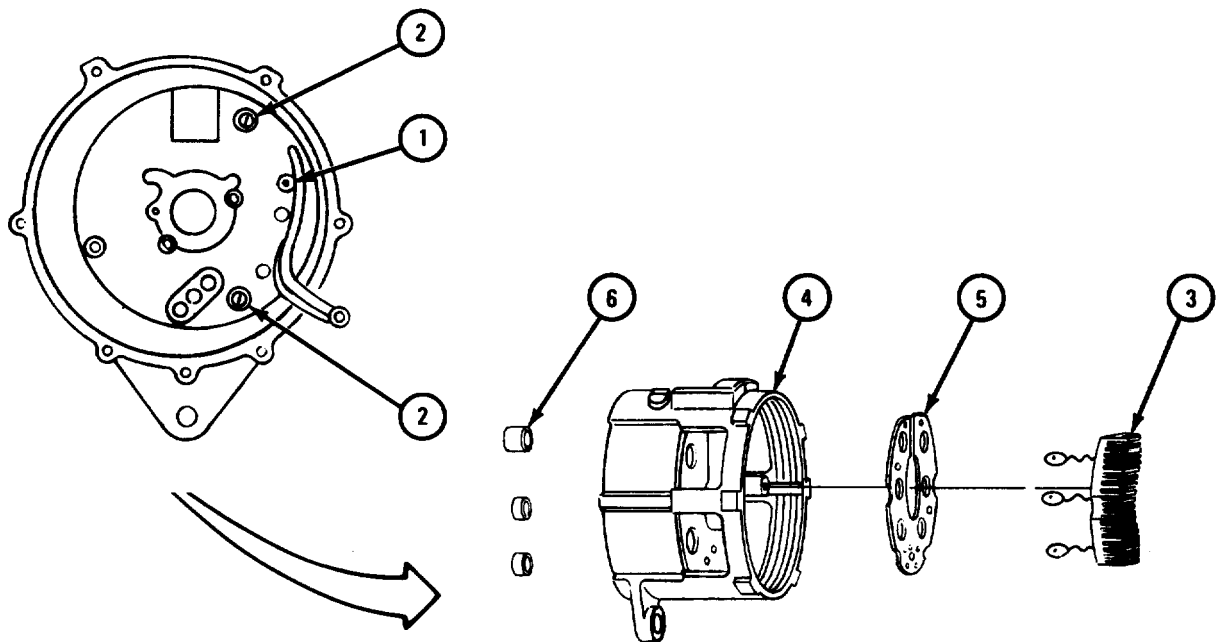
1. Take off two insulating washers (1).

NOTE

One of the positive rectifier mounting screws is longer than the other. Note positions of screws.

2. Take out two screws, flat washers, and insulating washers (2).
3. Pull positive rectifier (3) out of drive end of housing (4).
4. Take out insulator mount (5).
5. Take out three insulating bushings (6) from housing (4).

GO TO FRAME 10

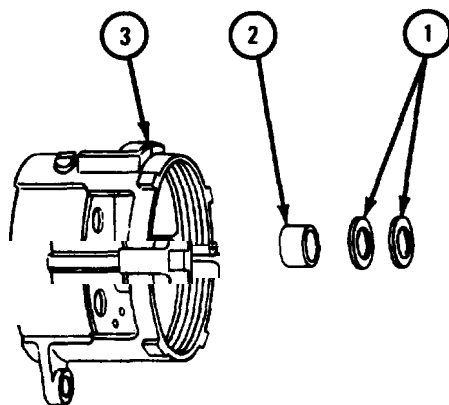


TA 103603

FRAME 1 0

1. Take out two teflon seals (1). Throw away seals.
2. Take roller bearing (2) out of housing (3).

END OF TASK



TA 103604

c. Cleaning. There are no special cleaning procedures needed. Refer to cleaning procedures given in para 1-3.

d. Inspection and Repair.

FRAME 1

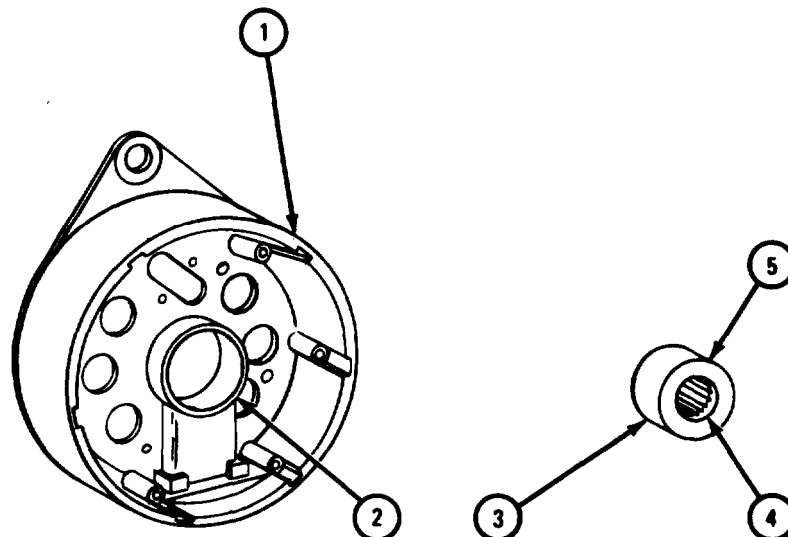
1. Check that housing (1) is not cracked or damaged. If housing is damaged, generator is nonrepairable.
2. Measure inside diameter of bearing bore (2). Inside diameter of bearing bore must be 1.3095 to 1.3105 inches. If bearing bore is not within given limits, generator is nonrepairable.

NOTE

If bearing (3) is not within given limits, get a new bearing.

3. Measure inside diameter (4) of bearing (3). Inside diameter must be 1.0005 go gage to 1.0015 inches no-go gage when held in 1.3120 ring gage.
4. Measure bearing (3) outside diameter (5). Outside diameter must be 1.3120 inches nominal when pushed into 1.3120 inches ring gage.
5. Check that bearing (3) is not damaged. Refer to TM 9-214.

GO TO FRAME 2



TA 103605

FRAME 2 I

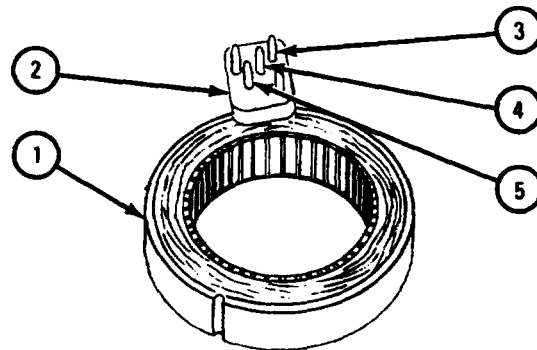
1. Check that stator (1) and stator terminal (2) are not cracked and that there are no stripped threads or loose pins. If stator or terminal is damaged, generator is nonrepairable.
2. Check that stator (1) has no broken windings or loose connections. Resolder any loose or broken connections.
3. Check that stator (1) has no grounds between three pins (3, 4 and 5) on terminal (2) and outer case of stator. Touch one test probe of multimeter to outer case and other test probe to each pin. If ground is present, generator is nonrepairable.

CAUTION

Do not use a battery or test lamp to make a continuity test. Reverse battery connection will burn out diodes instantly .

4. Check that stator (1) has continuity between three pins (3, 4 and 5) on terminal (2). Touch test probes of multimeter to pins (3 and 4), pins (3 and 5) and pins (4 and 5). If continuity is not made between three pins, generator is nonrepairable.

GO TO FRAME 3



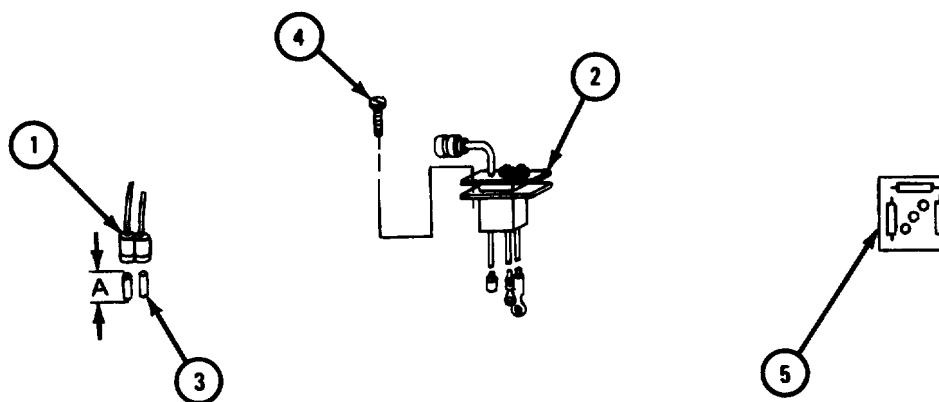
TA 103606

FRAME 3

1

1. Check that brush holder (1) and capacitor assembly (2) has no cracks, frayed or broken leads or any other damage. Throw away damaged parts and get new ones.
2. Check that brushes (3) are not cracked or oil soaked and that they have no loose or frayed leads. Check that distance A is 1/4 inch or more. If brushes are worn or damaged, get new ones.
3. Check that all screws (4) are not bent or broken and that they have no stripped threads or damaged heads. Throw away damaged screws and get new ones.
4. Check that capacitor panel (5) is not warped, cracked or damaged in any other way. Throw away damaged capacitor panel and get a new one.

GO TO FRAME 4



TA 103607

FRAME 4

CAUTION

Do not use a battery or test lamp to make a continuity test. Reverse battery connection will burn out diodes instantly .

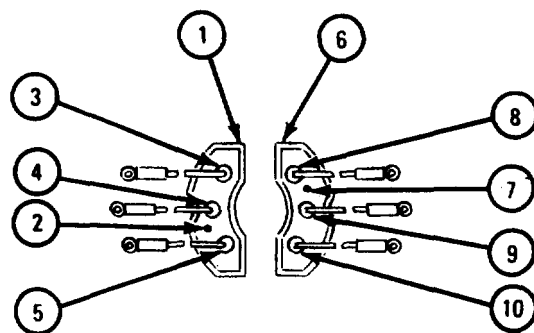
NOTE

On ohmmeters that use one 1 1/2-volt dry cell, low resistance readings will be approximately 20 to 30 ohms. On ohmmeters that use a 3-volt dry cell, low resistance readings will be approximately 10 to 15 ohms.

Positive rectifier (1) has a coating of epoxy for insulation.

1. Check resistance of positive rectifier (1). Touch positive test probe of multimeter to checkpoint one (2) and negative test probe to each of three rectifiers (3, 4, and 5). Ohmmeter must show low resistance when negative test probe is touched to each rectifier.
2. Check resistance of negative rectifier (6). Touch negative test probe of multimeter to checkpoint two (7) and positive test probe to each of three rectifiers (8, 9, and 10). Ohmmeter must show low resistance when positive test probe is touched to each rectifier.
3. If rectifiers (3, 4, 5, 8, 9, and 10) do not have low resistance, get new ones.

END OF TASK



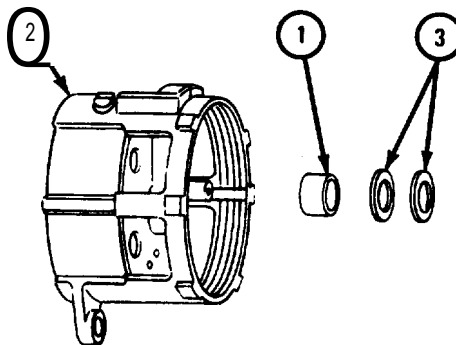
TA 103608

e. Assembly.

FRAME 1 |

1. Press bearing (1) into bore of housing (2).
2. Lightly coat bearing (1) with grease.
3. Press two new teflon seals (3) into bore of housing (2).

GO TO FRAME 2



TA 103609

FRAME 2

I

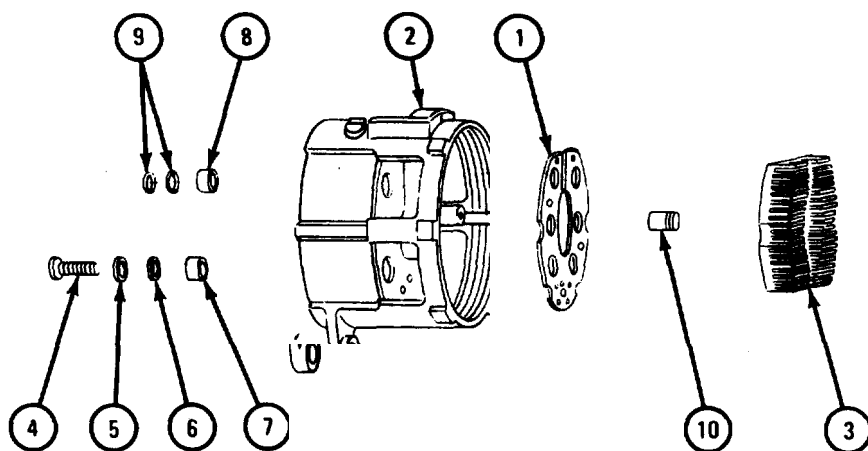
1. Place insulator mount (1) in housing (2) through drive end. Aline all holes in insulator mount.

NOTE

Positive rectifier (3) has an insulating coat of epoxy.

2. Put positive rectifier (3) on insulator mount (1) with one lead through each hole of housing (2).
3. Put in two screws (4), flat washers (5), insulating washers (6), and insulating bushings (7).
4. Put insulating bushing (8) and two insulating washers (9) on positive rectifier stud (10).

GO TO FRAME 3

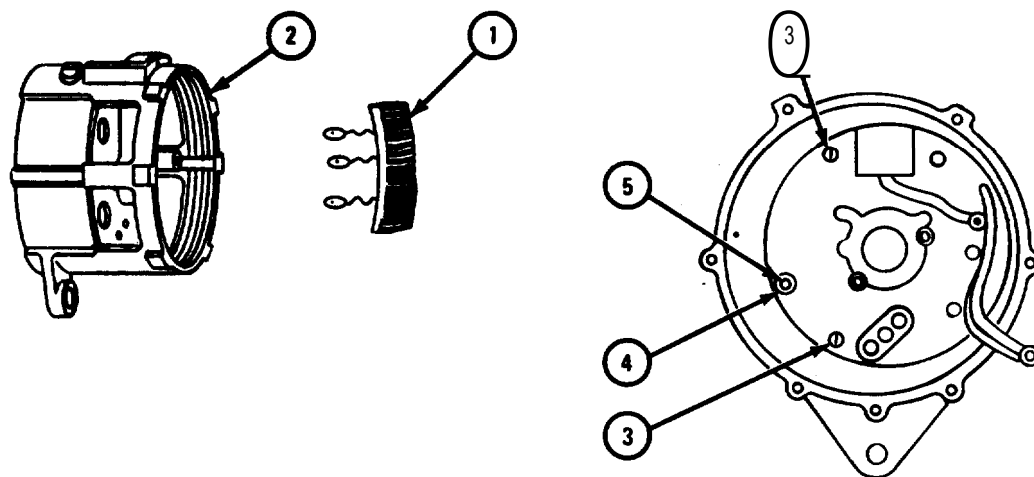


TA 103610

FRAME 3

1. Put negative rectifier (1) into drive end of housing (2) with one lead through each hole in housing.
2. Put in two screws (3).
3. Put nut (4) onto negative heat sink stud (5).

GO TO FRAME 4



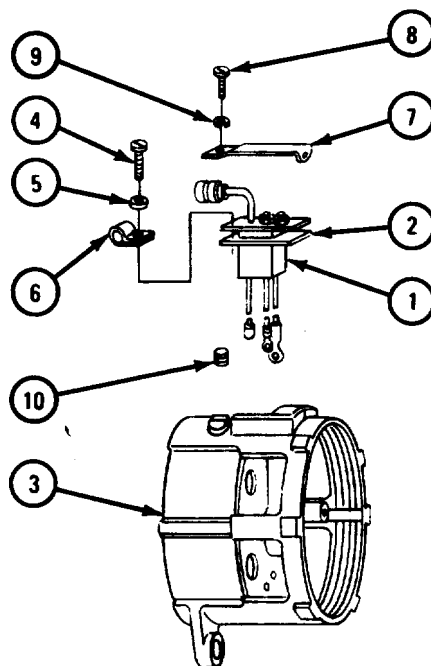
TA 103611

FRAME 4

1

1. Put capacitor and terminal assembly (1) and gasket (2) in housing (3) as shown.
2. Put in four screws (4), lockwasher (5), and clamps (6).
3. Slice capacitor assembly cover (7) onto pin on housing (3) and put in two screws (8) and lockwashers (9).
4. Put in pipe plug (10).

GO TO FRAME 5

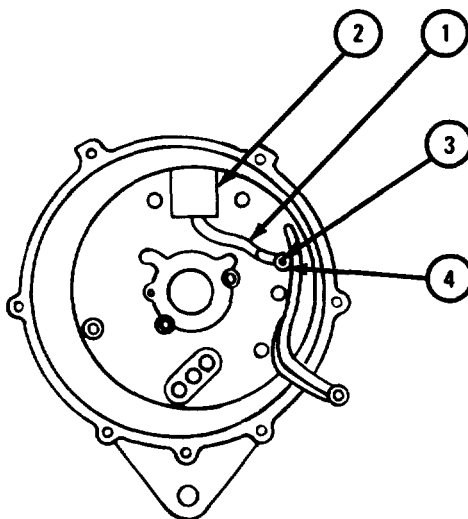


TA 103612

FRAME 5

1. Put lead (1) from capacitor assembly (2) on positive heat sink stud (3).
2. Put on nut, lockwasher, and flat washer (4).

GO TO FRAME 6



TA 103613

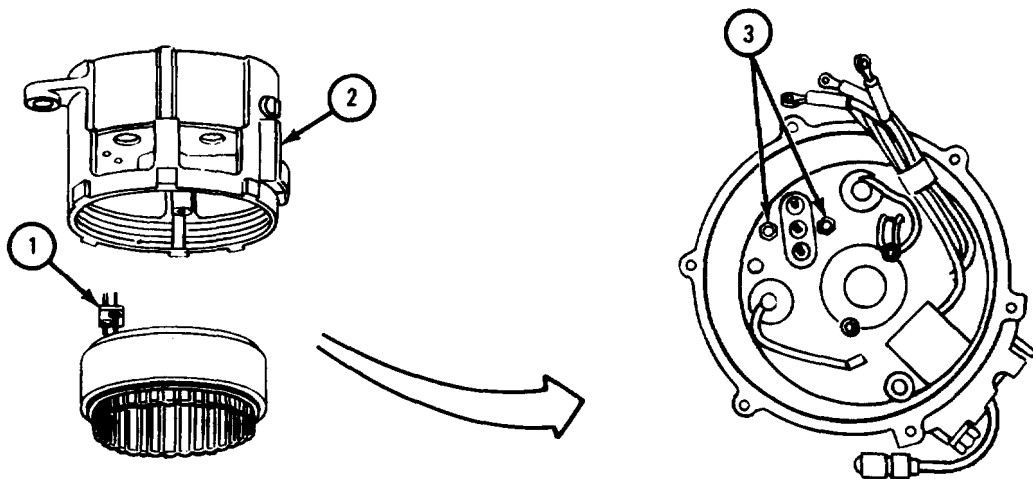
FRAME 6 1

CAUTION

Be careful not to damage stator and terminal assembly (1) when putting in stator. If stator is damaged, generator will not work correctly.

1. Aline stator terminal (1) with hole in housing (2) and put in stator and terminal assembly.
2. Put on two nuts, lockwashers, and flat washers (3).

GO TO FRAME 7

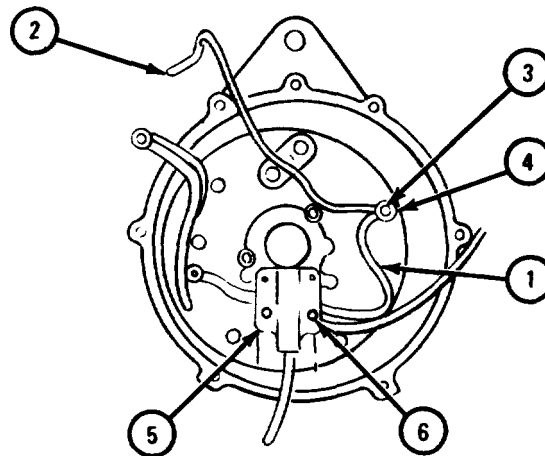


TA 103614

FRAME 7

1. Put brush holder lead (1) and regulator lead (2) on negative heat sink stud (3) as tagged and put on nut, lockwasher, and flat washer (4). Take off tags.
2. With scribe mark on brush holder (5) facing up, put brush holder in place and put in two screws, lockwashers, and flat washers (6).

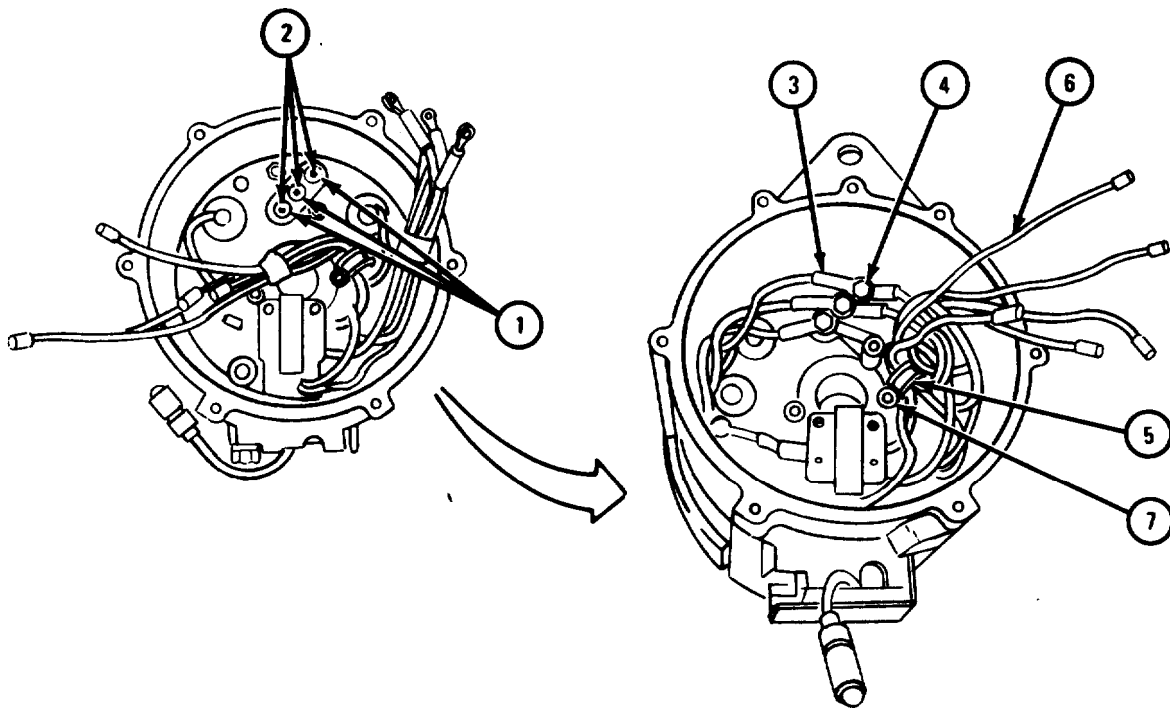
GO TO FRAME 8



TA 103615

FRAME 8

1. Place three flat washers (1) on stator terminal (2).
 2. Place nine leads (3) on stator terminal (2) as tagged. Take off tags.
 3. Put three nuts (4) on stator terminal (2).
 4. Put clamp (5) around five leads (6) and put in screw and lockwasher (7).
- GO TO FRAME 9



TA 103616

FRAME 9

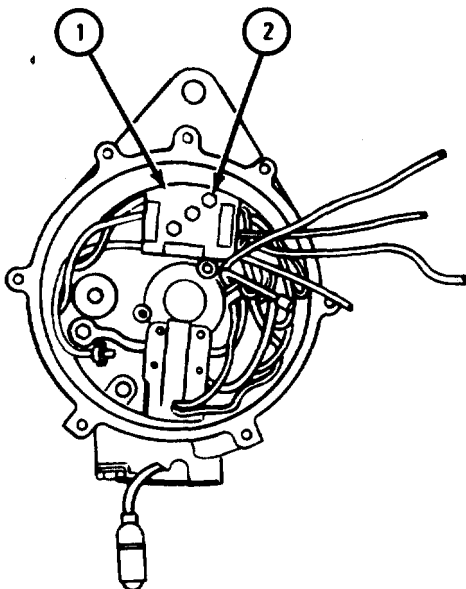
1. Put capacitor panel (1) in place.
2. Put on three tenz nuts (2).

NOTE

Follow-on Maintenance Action Required:

1. Replace drive end bell and rotor assembly. Refer to para 2-12.
2. Replace end cover and regulator assembly. Refer to para 2-11.

END OF TASK



TA 103617

Section V. LEECE-NEVILLE MODEL GENERATOR 3002AE

2-14. END COVER AND REGULATOR ASSEMBLY.

TOOLS: No special tools required

SUPPLIES: Housing preformed packing
Artillery and automotive grease, type GAA, MIL-G-10924
Tags

PERSONNEL: One

EQUIPMENT CONDITION: Generator removed from vehicle, pulley removed from generator.

a. Preliminary Procedure. Clean outside of generator before disassembly. Refer to para 1-3.

b. Removal.

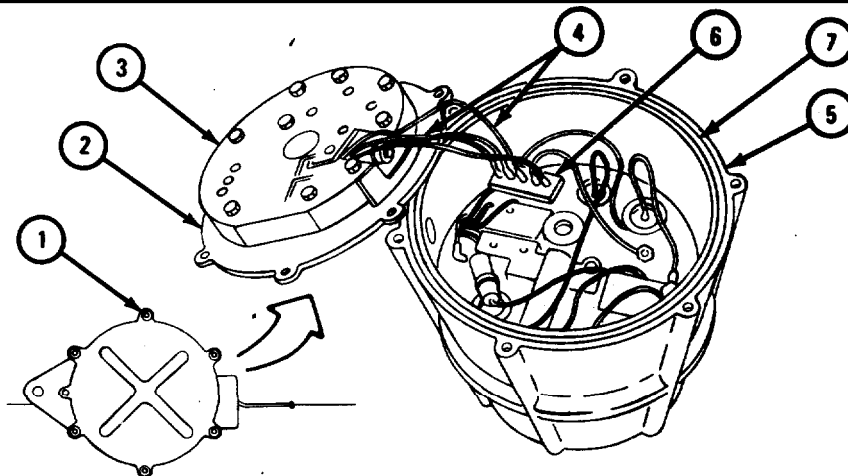
1. Take out six screws (1).

CAUTION

Be careful when lifting end cover (2) and regulator (3) assembly. Regulator leads (4) may be damaged and generator will not work correctly.

2. Lift end cover (2) and regulator (3) assembly clear of housing (5).
3. Tag five regulator leads (4) so that they can be put back in the same place.
4. Slip off five regulator leads (4) from terminal strip (6).
5. Take preformed packing (7) from groove in housing (5). Throw away packing.

END OF TASK



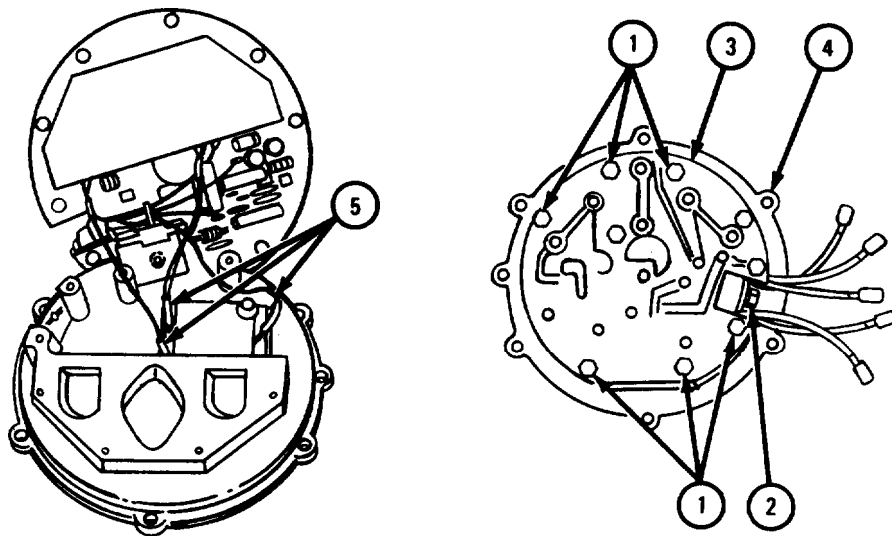
TA 103618

c. Disassembly.

FRAME 1

1. Take out nine screws with washers (1).
2. Take off nut and washer (2).
3. Take regulator (3) off cover (4).
4. Tag and unsolder three wires (5).

END OF TASK



TA 103619

d. Cleaning. There are no special cleaning procedures needed. Refer to cleaning procedures given in para 1-3.

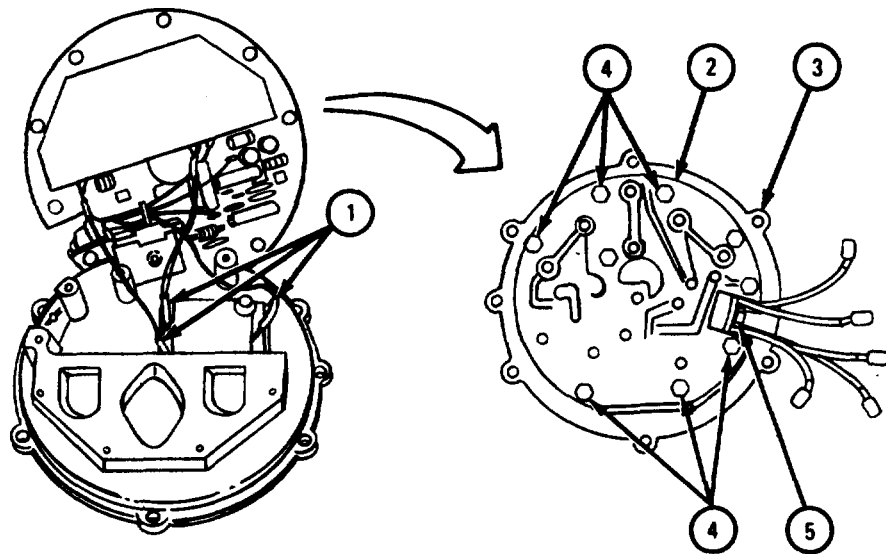
e. Inspection and Repair. Refer to para 2-11e.

f. Assembly.

FRAME 1

1. Solder three wires (1) as tagged.
2. Put regulator (2) on cover (3).
3. Put in nine screws with washers (4).
4. Put on nut and washer (5).

END OF TASK



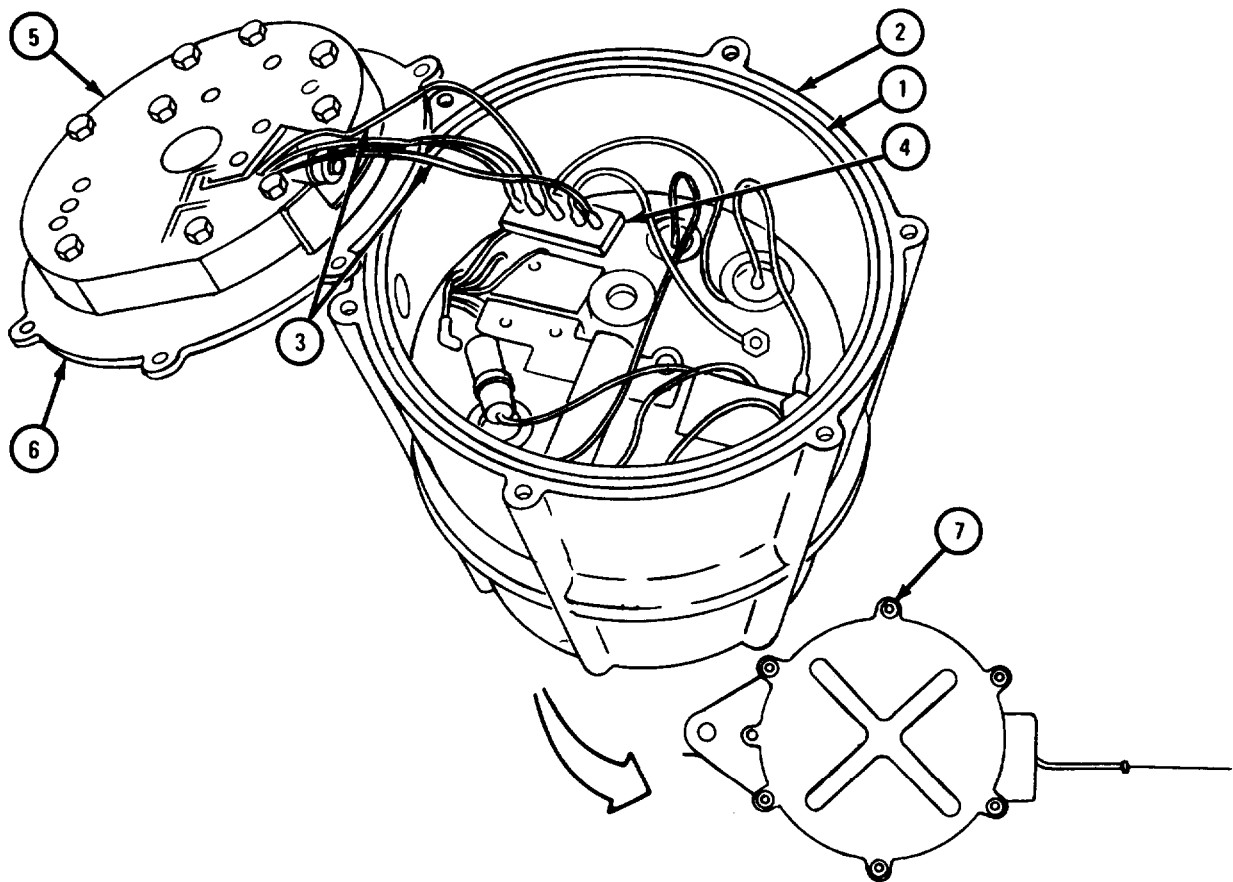
TA 103620

g. Replacement.

FRAME 1

1. Coat preformed packing (1) with grease and place packing in groove in housing (2).
2. Slip five regulator leads (3) as tagged onto terminal strip (4). Take off tags.
3. Place regulator (5) and end cover (6) on housing (2).
4. Put in six screws (7).

END OF TASK



TA 103621

2-15. DRIVE END BELL AND ROTOR ASSEMBLY .

TOOLS: No special tools required

SUPPLIES : Bearing retainer preformed packing

PERSONNEL: One

EQUIPMENT CONDITION : Generator removed from vehicle, pulley removed from generator.

a. Preliminary Procedures.

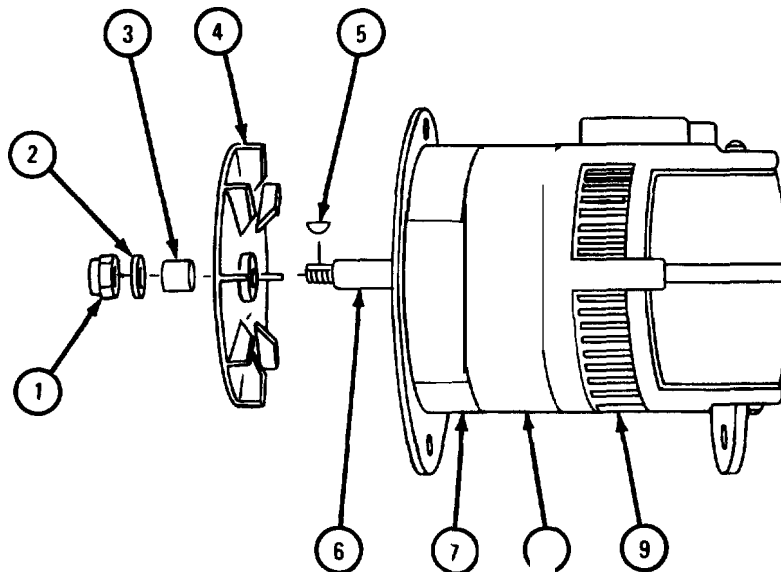
(1) Clean outside of generator before disassembly. Refer to para 1-3.

(2) Remove end cover and regulator assembly. Refer to para 2-14.

b. Removal.

FRAME 1

1. Take nut (1), washer (2), spacer (3), fan (4), and woodruff key (5) off shaft (6).
 2. Scribe a mark across drive end bell (7), stator (8), and housing (9).
- GO TO FRAME 2



TA 103622

FRAME 2

1. Take out six screws and flat washers (1) from drive end bell (2).

CAUTION

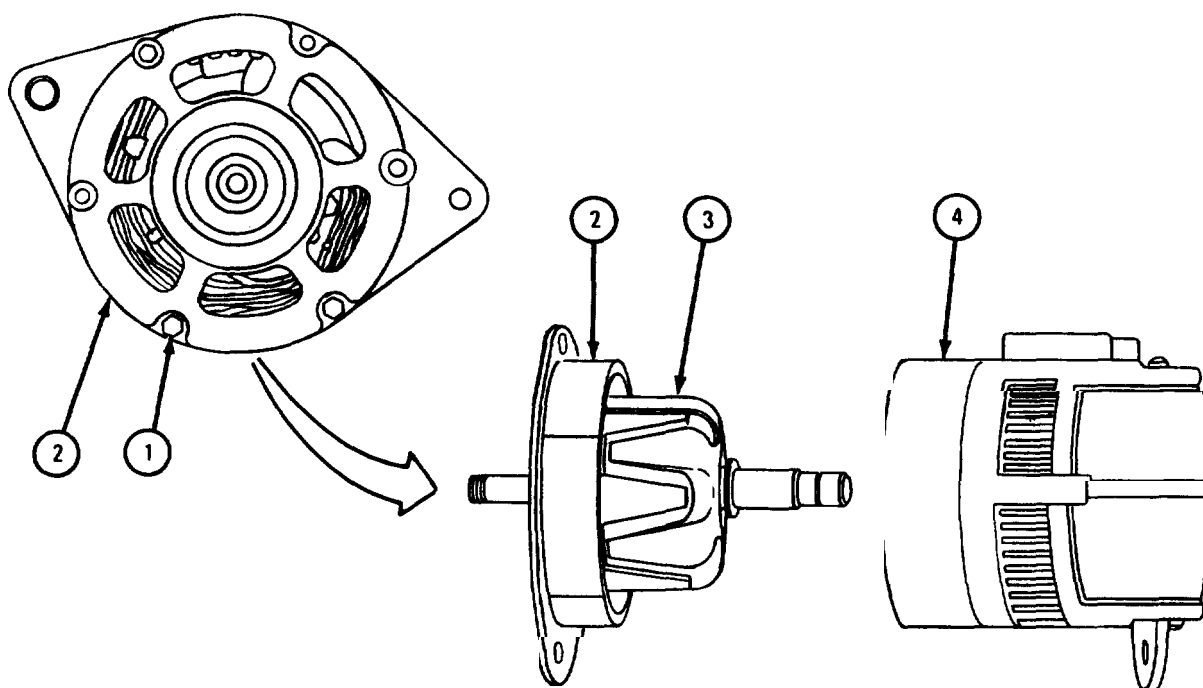
When drive end bell (2) has been taken off, stator windings will show. Be careful not to nick or cause other damage to stator windings. Do not rest generator on windings.

NOTE

Brushes will fall out of brush holders when drive end bell (2) is taken out. Take out brushes and check that they are not worn. Refer to para 2-13d for inspection procedures.

2. Pull drive end bell (2) and rotor (3) assembly from housing (4).

END OF TASK



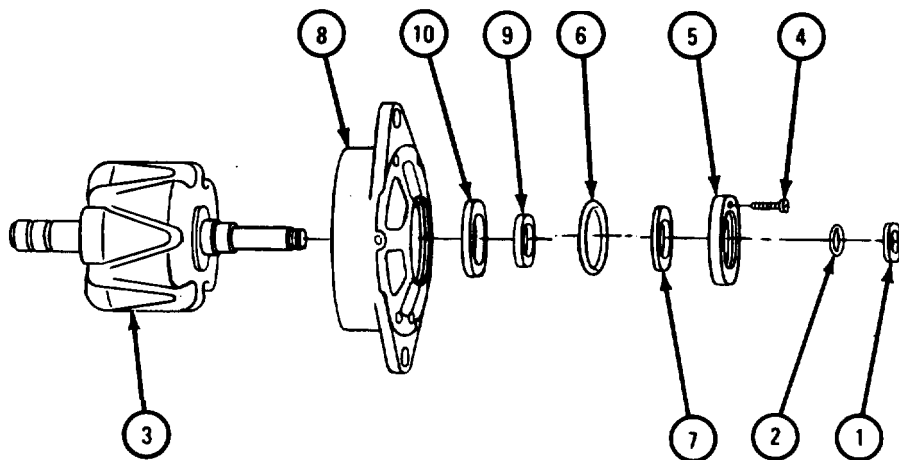
TA 103623

c. Disassembly.

FRAME 1

1. Take seal sleeve (1) and packing (2) off shaft of rotor (3).
2. Take out four screws (4) and take off bearing retainer (5) and preformed packing (6). Throw away packing.
3. Press seal (7) out of bearing retainer (5).
4. Pull drive end bell (8) from shaft of rotor (3).
5. Press bearing (9) and seal (10) out of drive end bell (8) through front of drive end bell.

END OF TASK



TA 103624

d. Cleaning. There are no special cleaning procedures needed. Refer to cleaning procedures given in para 1-3.

e. Inspection and Repair. Refer to para 2-12e.

f. Assembly.

FRAME 1

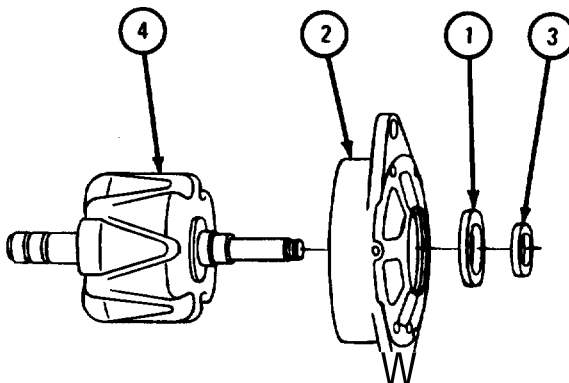
1. Put seal (1) into bearing bore in housing (2) with smooth side of seal facing away from bearing (3). Make sure that seal is flush with rear edge of bearing bore.
2. Fill cavity behind seal (1) with grease.

NOTE

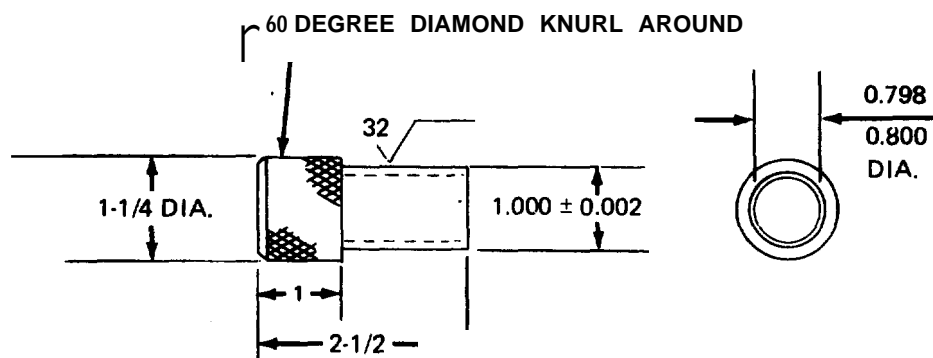
Have machine shop make installing tool. See figure 2-6.

3. Place installing tool into seal (1) from front of drive end bell (2) so lips of seal face rear of end bell.
4. Place drive end bell (2) on shaft of rotor (4) so shaft forces tool out of drive end bell.

GO TO FRAME 2



TA 103625



MATERIAL: T.S. HDN 48-50RC

NOTE: ALL DIMENSIONS SHOWN ARE IN INCHES

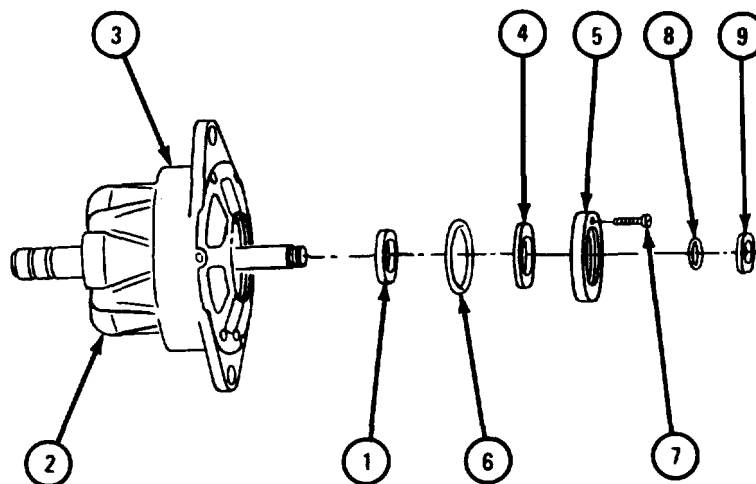
TA 103626

Figure 2-6. Installing Tool Fabrication Instructions

FRAME 2

1. Press bearing (1) onto shaft of rotor (2) and into drive end bell (3).
2. Put seal (4) into bearing retainer (5) with smooth side of seal facing outside of retainer.
3. Put large packing (6) around outer edge of bearing (1) and put bearing retainer (5) in place.
4. Put in four screws (7).
5. Put small packing (8) around shaft and put seal sleeve (9) onto shaft with counterbore of sleeve facing toward bearing (1).

END OF TASK



TA 103627

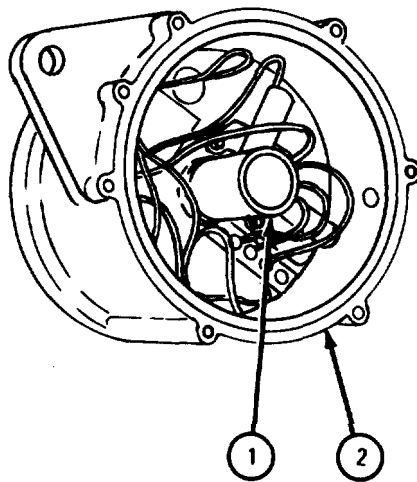
g. Replacement.

NOTE

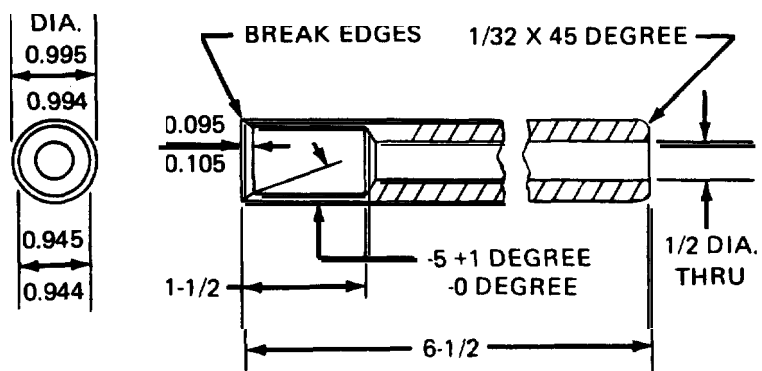
Have machine shop make pilot tool. See figure 2-7.

1. Place pilot tool (1) into bearing bore of housing (2) through slipring end of housing as shown.

GO TO FRAME 2



TA 103628



NOTE: ALL DIMENSIONS SHOWN ARE
IN INCHES

TA 103629

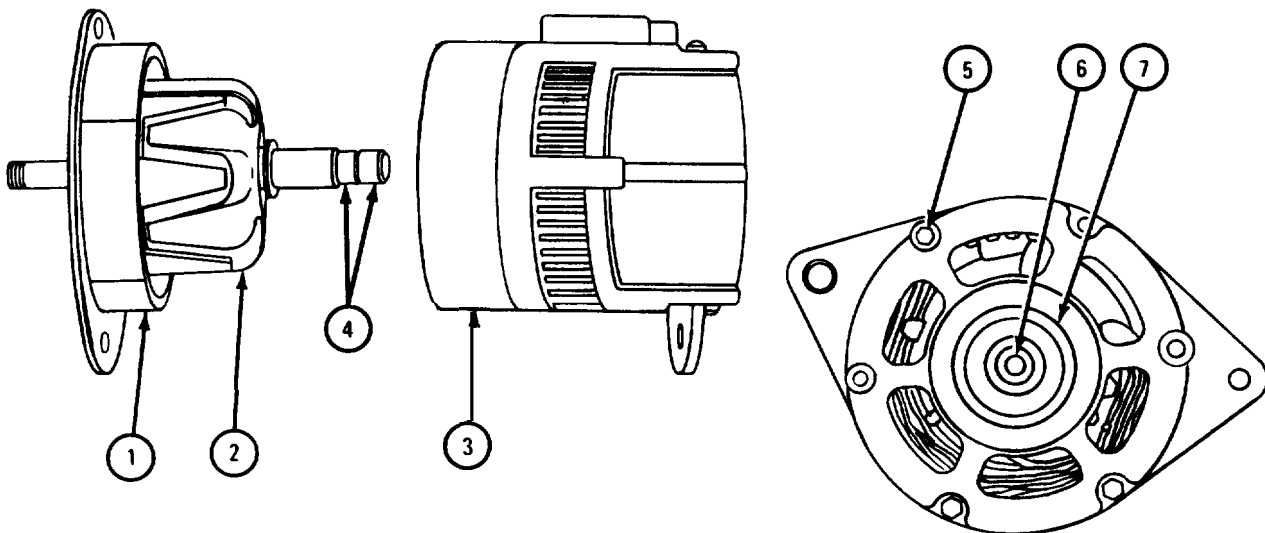
Figure 2-7. Pilot Tool Fabrication Instructions

FRAME 2

1

1. Put drive end bell (1) and rotor (2) assembly in housing and stator assembly (3) so that sliprings (4) go into pilot tool.
2. Push rotor (2) into place and push pilot tool out of housing and stator assembly (3).
3. Align scribe marks and put in six screws and washers (5).
4. Fill cavity around shaft (6) in front of bearing retainer (7) with grease.

GO TO FRAME 3

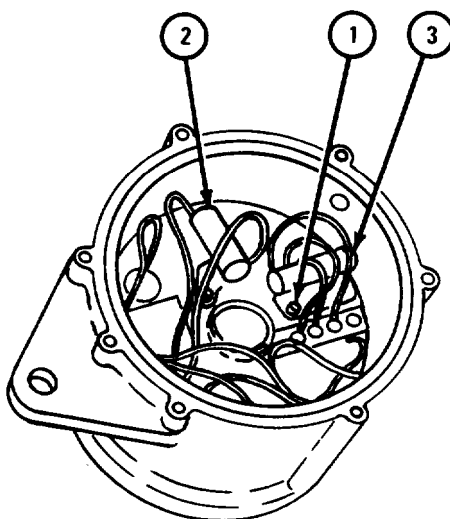


TA 103630

FRAME 3

1. Take out three screws, lockwashers, and flat washers (1).
2. Put brushes in brush holders (2 and 3).
3. Put in three screws, lockwashers, and flat washers (1).

GO TO FRAME 4



TA 103631

FRAME 4

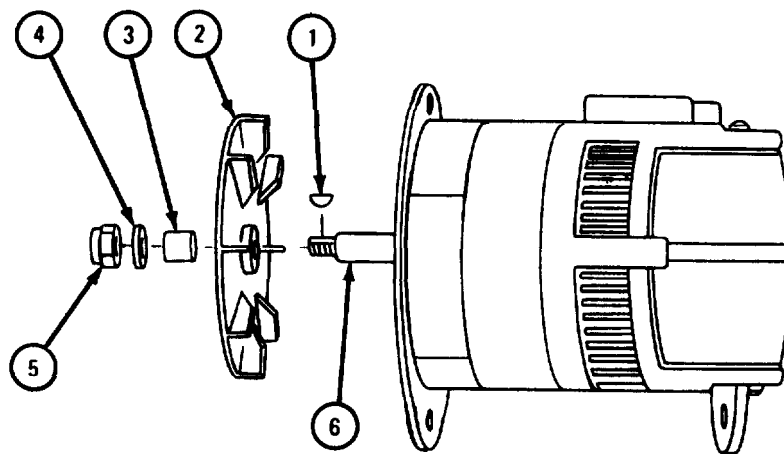
1. Put woodruff key (1), fan (2), spacer (3), washer (4), and nut (5) on shaft (6).

NOTE

Follow-on Maintenance Action Required:

Replace regulator and end cover assembly. Refer to para 2-11.

END OF TASK



TA 103632

2-16. HOUSING AND STATOR ASSEMBLY .

TOOLS: No special tools required

SUPPLIES: Housing seal (2)

Sealer compound, type II, MIL-S-45180

Tags

PERSONNEL: One

EQUIPMENT CONDITION : Generator removed from vehicle, pulley removed from generator.

a. Preliminary Procedures.

(1) Clean outside of generator before disassembly. Refer to para 1-3.

(2) Remove end cover and regulator assembly. Refer to para 2-14.

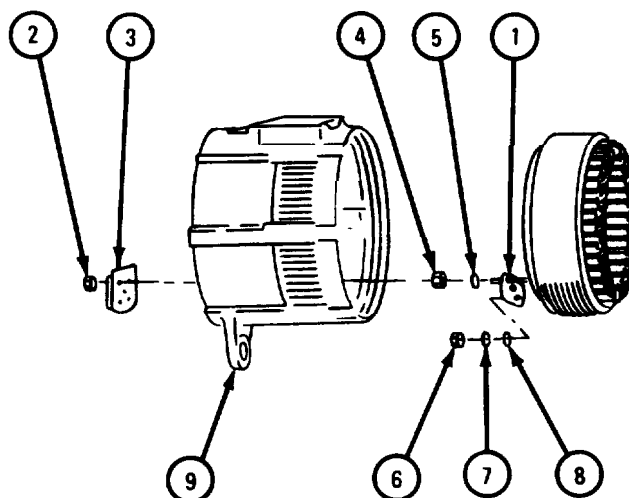
(3) Remove drive end bell and rotor assembly. Refer to para 2-15.

b. Disassembly.

FRAME 1

1. Tag all leads joined to stator terminal (1) so that they can be put back in the same place.
2. Take off three nuts (2) and take off capacitor panel (3). Take off three nuts (4), all leads, and flat washers (5).
3. Take off two nuts (6), lockwashers (7), and flat washers (8) that join stator terminal (1) to housing (9). Carefully lift stator from housing.

GO TO FRAME 2

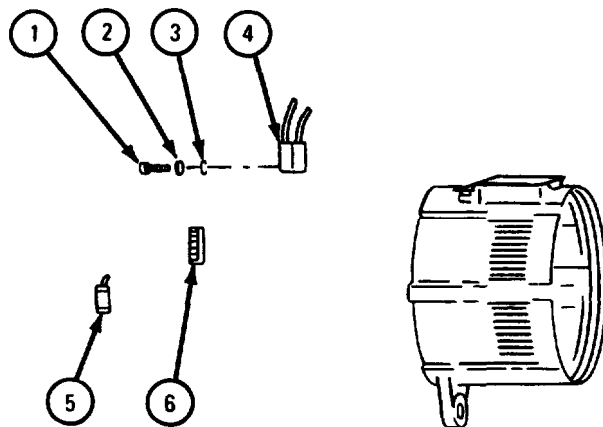


TA 103633

FRAME 2

1. Take three screws (1), lockwashers (2), and flat washers (3) from brush holders (4 and 5).
2. Take leads of brush holders (4 and 5) off terminal board (6) and take out brush holders.

GO TO FRAME 3

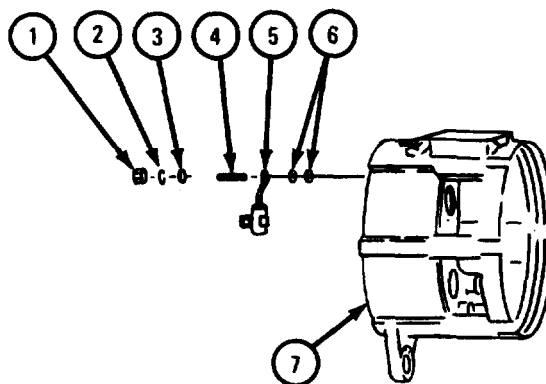


TA 103634

FRAME 3

1. Take off nut (1), lockwasher (2), and flat washer (3) from positive rectifier stud (4) .
2. Take two leads from capacitor and lead assembly (5) off positive rectifier stud (4) .
3. Take off two flat insulating washers (6) from positive rectifier stud (4) in housing (7).

GO TO FRAME 4



TA 103635

FRAME 4 |

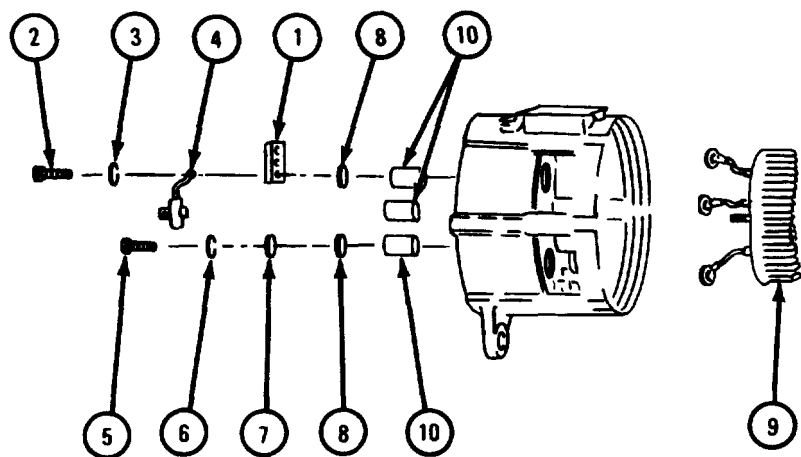
1. Tag and take off leads on terminal board (1).
2. Take out two screws (2) and lockwashers (3), and take out terminal board (1) and capacitor (4),
3. Take out screw (5), lockwasher (6), flat washer (7) and two insulating washers (8) from positive rectifier (9).

NOTE

Positive rectifier mounting screws and stud are insulated by three insulating bushings (10). Be careful not to lose these bushings when taking out positive rectifier (9).

4. Take out positive rectifier (9) and three insulating bushings (10).

GO TO FRAME 5

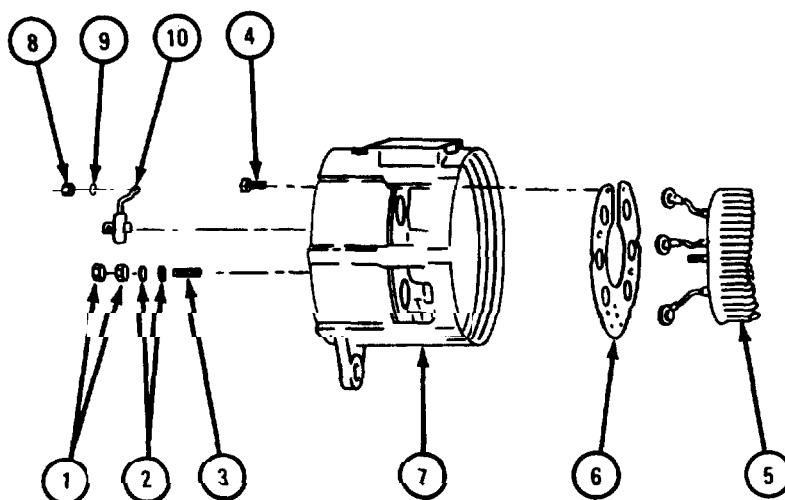


TA 103636

FRAME 5

1. Take two nuts (1), flat washer (2), and two ground leads off negative rectifier stud (3).
2. Take out two screws (4) and take negative rectifier (5) and insulator mount (6) out of housing (7).
3. Take off nut (8) and lockwasher (9). Take out capacitor (10).

GO TO FRAME 6

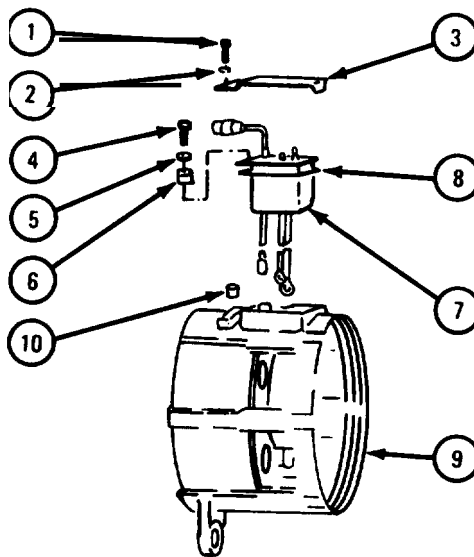


TA 103637

FRAME 6

1. Take out two screws (1) and lockwashers (2) and take off cover (3).
2. Take out four screws (4), lockwashers (5), and clamp (6).
3. Take capacitor and lead assembly (7) and gasket (8) out of housing (9).
4. Take out pipe plug (10).

GO TO FRAME 7

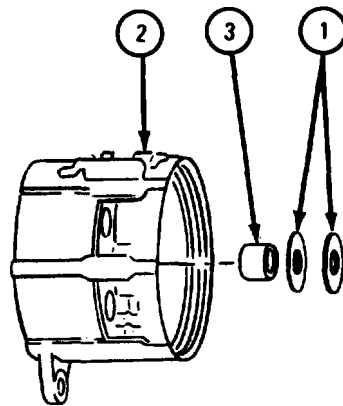


TA 103638

FRAME 7

1. Take out and throw away two seals (1) from bore in housing (2).
2. Pull bearing (3) out of bore in housing (2).

END OF TASK



TA 103639

c. Cleaning. There are no special cleaning procedures needed. Refer to cleaning procedures given in para 1-3.

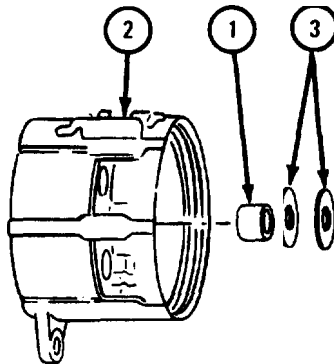
d. Inspection and Repair. Refer to para 2-13d.

e. Assembly.

FRAME 1

1. Press bearing (1) into bore in housing (2).
2. Coat bore of bearing (1) with grease.
3. Press two seals (3) into bore in housing (2) with flat side of seal away from bearing (1).
3. Put sealer compound around outer edge of two seals (3).

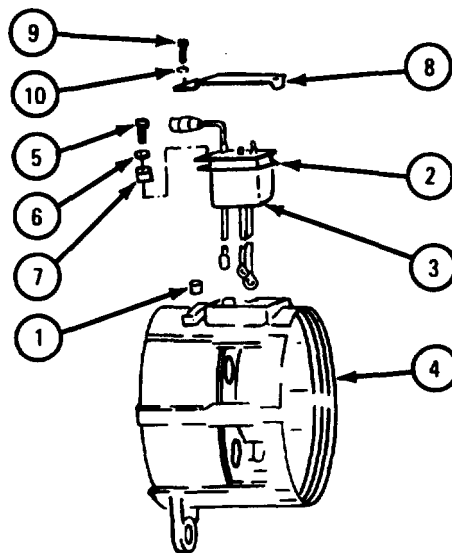
GO TO FRAME 2 .



TA 103640

FRAME 2

1. Put in pipe plug (1).
 2. Put gasket (2) and capacitor and lead assembly (3) into housing (4). Put in four screws (5), lockwashers (6), and one clamp (7) to hold down ignition lead.
 3. Put cover (8) on housing (4) and put in two screws (9) and lockwashers (10).
- GO TO FRAME 3



TA 103641

FRAME 3 1

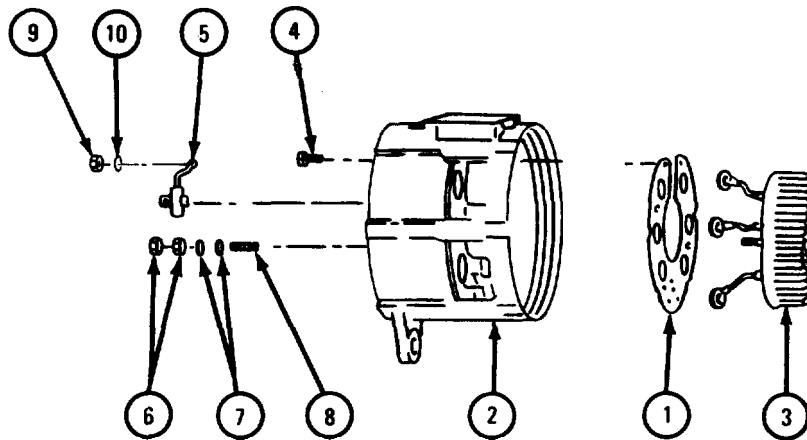
1. Coat insulator mount (1) with sealer compound on both sides. Place insulator mount in housing (2), alining holes.

NOTE

Housing (2) is marked POS. and NEG. so rectifiers will be put back the right way. Positive rectifier has an epoxy coating for insulation and negative rectifier (3) has no coating.

2. Place negative rectifier (3) in housing (2). Put in two screws (4) and capacitor (5).
3. Put two nuts (6), flat washers (7), and ground leads on negative rectifier stud (8) .
4. Put capacitor (5) lead on with nut (8) and lockwasher (10).

GO TO FRAME 4

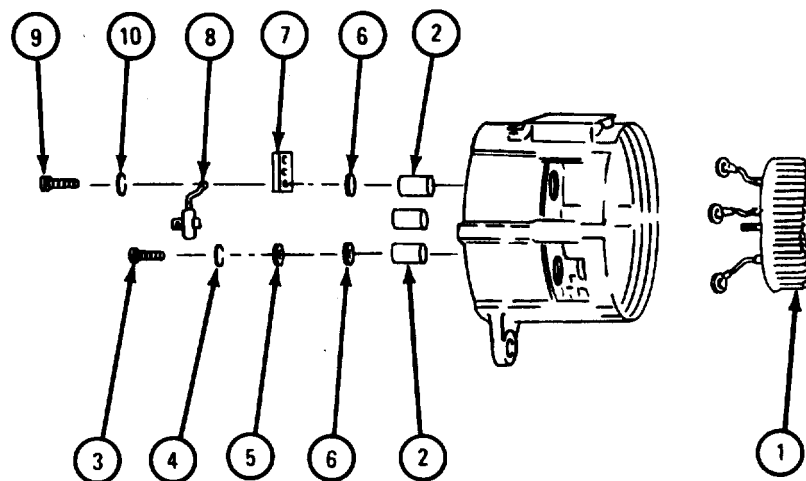


TA 103642

FRAME 4

1. Put positive rectifier (1) in place.
2. Put in three insulating bushings (2).
3. Put in screw (3), lockwasher (4), flat washer (5), and one insulating washer (6).
4. Put in terminal board (7) and capacitor (8) and put in two screws (9), lockwashers (10), and other insulating washer (6).

GO TO FRAME 5

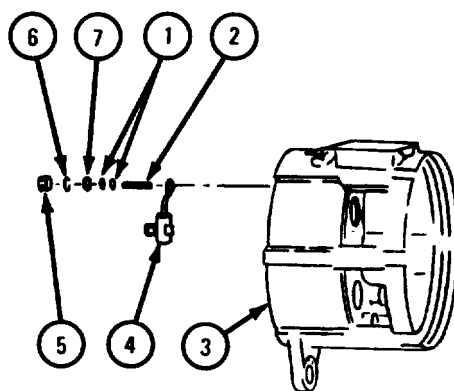


TA 103643

FRAME 5

1. Put two insulating washers (1) on positive rectifier stud (2) in housing (3).
2. Put two leads from capacitor and lead assembly (4) on positive rectifier stud (2) .
3. Put on nut (5), lockwasher (6), and flat washer (7).

GO TO FRAME 6

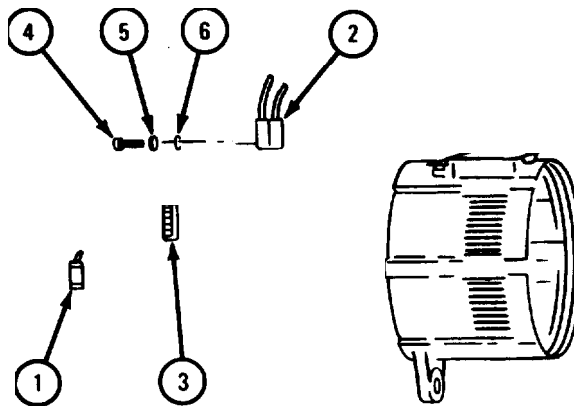


TA 103644

FRAME 6

1. Slip leads from brush holders (1 and 2) onto terminal board (3).
2. Put brush holders (1 and 2) in place with three screws (4), lockwashers (5), and flat washers (6).

GO TO FRAME 7



TA 103645

FRAME 7

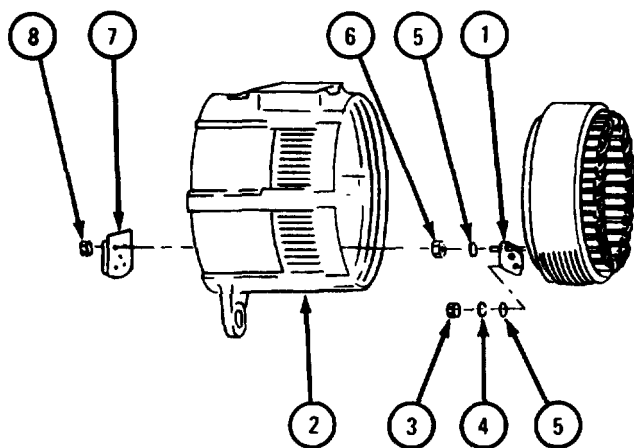
1. Aline stator (1) with housing (2) and put them together.
2. Put on two nuts (3), lockwashers (4), and flat washers (5) that hold stator (1) and housing (2) together.
3. Put on three flat washers (5), leads as tagged, and nuts (6). Take off tags.
4. Put on capacitor panel (7) with three nuts (8).

NOTE

Follow-on Maintenance Action Required:

1. Replace drive end bell and rotor assembly. Refer to para 2-15.
2. Replace end cover and regulator assembly. Refer to para 2-14.

END OF TASK



TA 103646

Section VI. LEECE-NEVILLE MODEL GENERATORS 5504AA, 5504AB , AND 5300GP

2-17. FAN AND HUB ASSEMBLY.

TOOLS: No special tools required

SUPPLIES: None

PERSONNEL: One

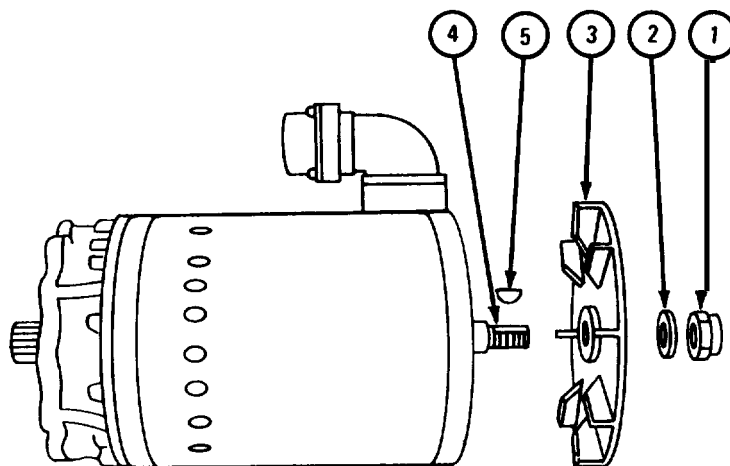
EQUIPMENT CONDITION: Generator removed from vehicle, pulley removed from generator.

Preliminary Procedure. Clean generator before disassembly. Refer to para 1-3.

b. Removal.**FRAME 1**

1. Take off nut (1) and flat washer (2).
2. Slide fan (3) off shaft (4).
3. Take out woodruff key (5).

END OF TASK



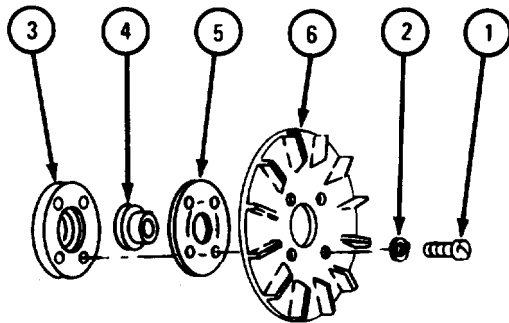
TA 103650

c. Disassembly.

(1) Models 5504AA and 5504AB.

FRAME 1

1. Take out four screws (1) and lockwashers (2).
 2. Take off clutch disk (3), fan hub (4), and fan spring (5) from fan (6).
- END OF TASK



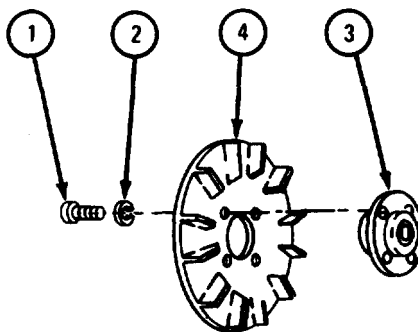
TA 103651

(2) Model 5300GP.

FRAME 1

1. Take out four screws (1) and lockwashers (2).
2. Take fan hub (3) off fan (4).

END OF TASK



TA 103652

d. Cleaning. There are no special cleaning procedures needed. Refer cleaning procedures given in para 1-3.

e. Inspection and Repair.

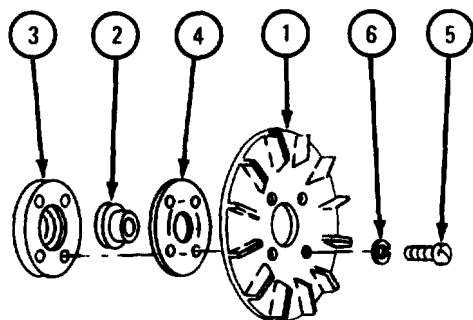
FRAME 1

NOTE

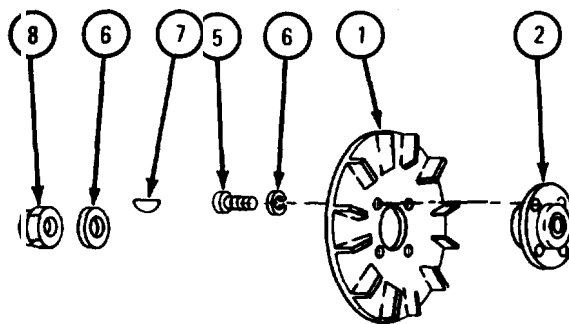
If any part is damaged, generator is nonrepairable.

1. Check that fan (1), hub (2), clutch disk (3), and fan spring (4) are not cracked, bent or broken and that they have no stripped threads.
2. Check that screws (5), washers (6), woodruff key (7), and nut (8) are not bent or broken and that they have no damaged threads or heads.

END OF TASK



MODELS 5504AA AND 5504AB



MODEL 5300 GP

TA 103653

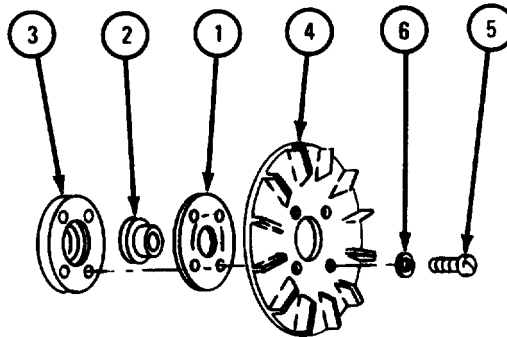
f. Assembly.

(1) Models 5504AA and 5504AB.

FRAME 1

1. Put fan spring (1), fan hub (2), and clutch disk (3) on flat side of fan (4). Put in four screws (5) and lockwashers (6).

END OF TASK

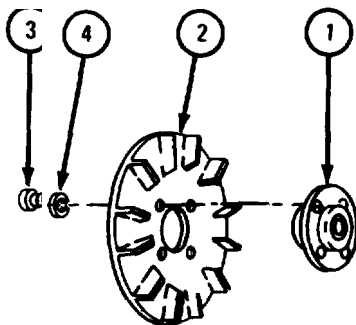


TA 103654

(2) Model 5300GP.

FRAME 1

1. Put fan hub (1) on fan (2).
 2. Put in four screws (3) with four lockwashers (4)
- END OF TASK**



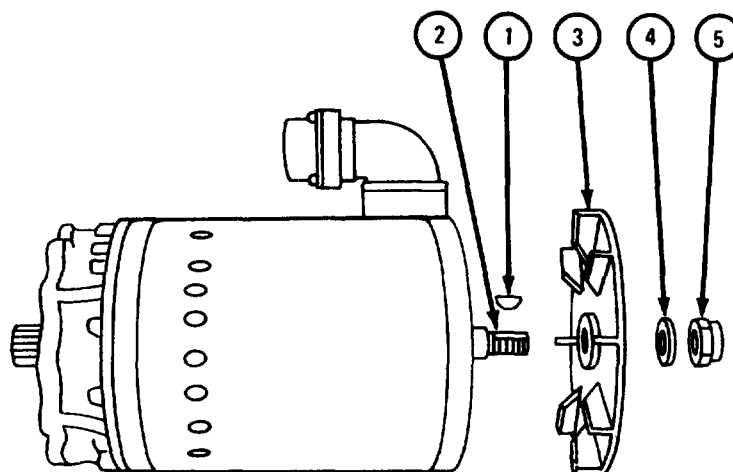
TA 103655

g. Replacement.

FRAME 1

1. Put woodruff key (1) in shaft (2).
2. Aline keyway in fan (3) with key (1) and slide fan (3) onto shaft (2).
3. Put on flat washer (4) and nut (5).

END OF TASK



TA 103656

2-18. SLIPRING END HOUSING.

TOOLS: No special tools required

SUPPLIES: Cotter pin (4)

PERSONNEL: One

EQUIPMENT CONDITION: Generator removed from vehicle, pulley removed from generator.

a. Preliminary Procedures.

(1) Clean outside of generator before disassembly. Refer to para 1-3.

(2) Remove fan and hub assembly. Refer to para 2-17.

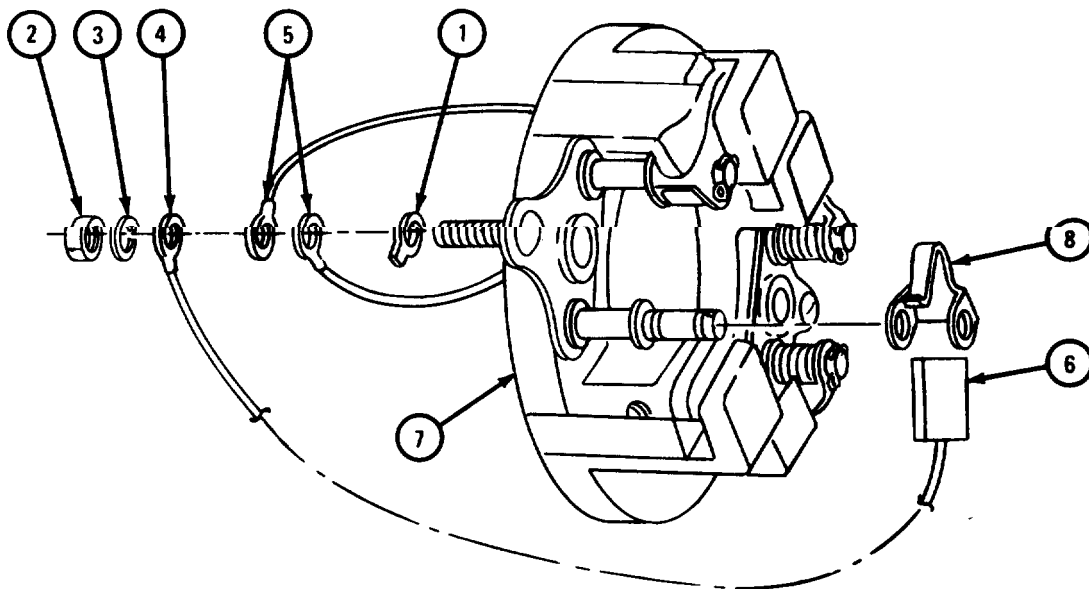
b. Removal.

FRAME 1

1. Straighten tabs on two key washers (1). Take off two nuts (2), lockwashers (3), and two terminal leads (4).
2. Take off four brush leads (5) and two key washers (1).
3. Pull four brushes (6) out halfway in brush holder (7). Place four brush levers (8) so they hold brushes in the halfway position.

IF WORKING ON MODEL 5504AA OR MODEL 5504AB , GO TO FRAME 2.

IF WORKING ON MODEL 5500GP, GO TO FRAME 4

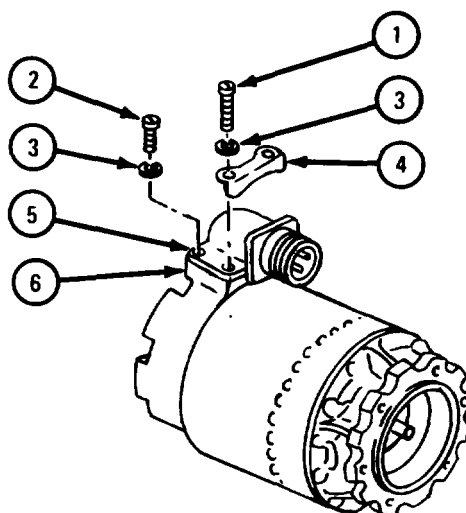


TA 103657

FRAME 2

1. Take out two screws (1), two screws (2), and four lockwashers (3).
2. Take off connector cover (4).
3. Break seal between connector elbow (5) and slipring end housing (6).

GO TO FRAME 3

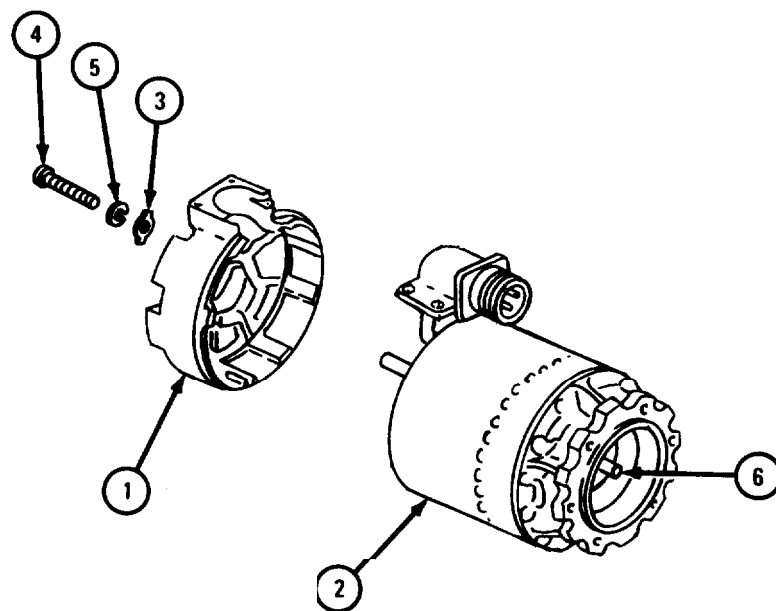


TA 103658

FRAME 3

1. Scribe a mark across slipring end housing (1) and stator shroud (2).
2. Straighten tabs on washers (3) and take out six screws (4), lockwashers (5), and tabbed washers.
3. Using soft-faced hammer, hit drive end of shaft (6) enough to fit puller on slipring end housing (1).
4. Pull off slipring end housing (1).

END OF TASK

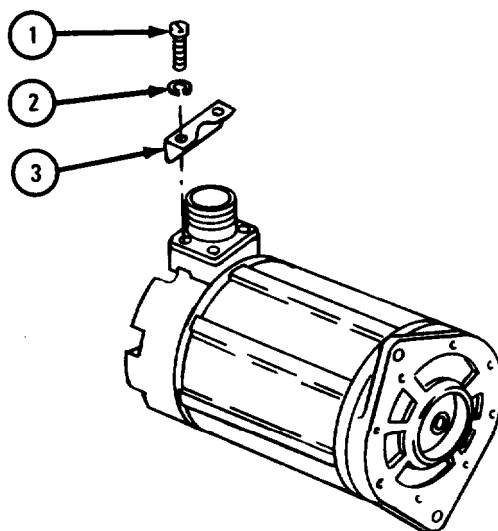


TA 103659

FRAME 4

1. Take out four screws (1) and four lockwashers (2) and take off cover plate (3).

GO TO FRAME 5

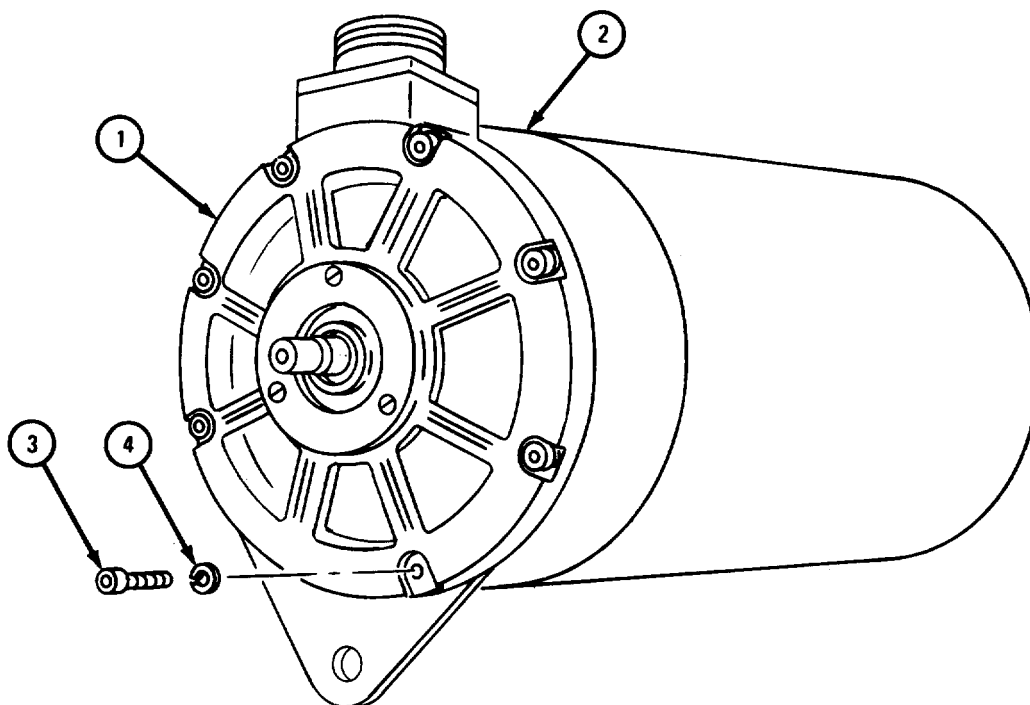


TA 104253

FRAME 5

1. Scribe mark across slipring end housing (1) and shroud (2).
2. Take out seven screws (3) and seven lockwashers (4).
3. Pull off slipring end housing (1).

END OF TASK



TA 104254

c. Disassembly.**FRAME 1**

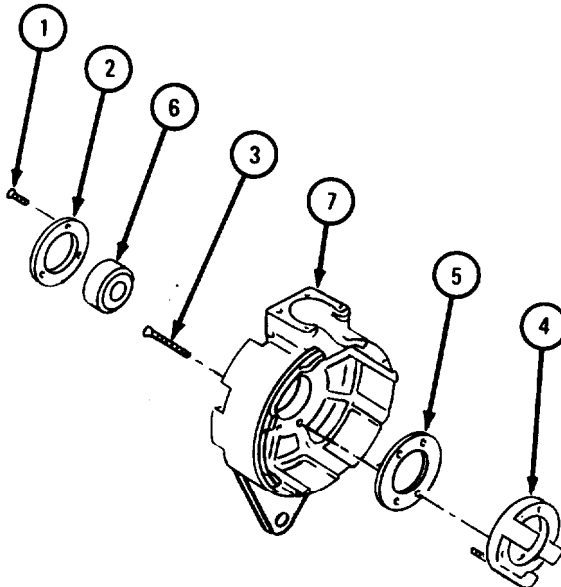
1. Take out three screws (1) and take off bearing retainer (2).
2. Take out four screws (3). Take off brush holder (4) and bearing retainer (5).

NOTE

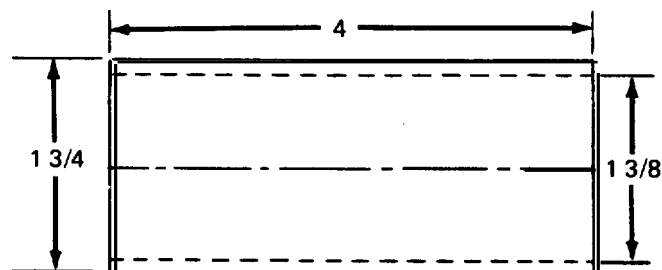
Have machine shop make fabricated tool. See figure 2-8.

3. Using fabricated tool, drive bearing (6) from bore in slipring end housing (7) .

GO TO FRAME 2



TA 103660

**NOTE:**

1. ALL DIMENSIONS SHOWN ARE IN INCHES
2. MATERIAL: 1-3/4 O.D. STEEL TUBING

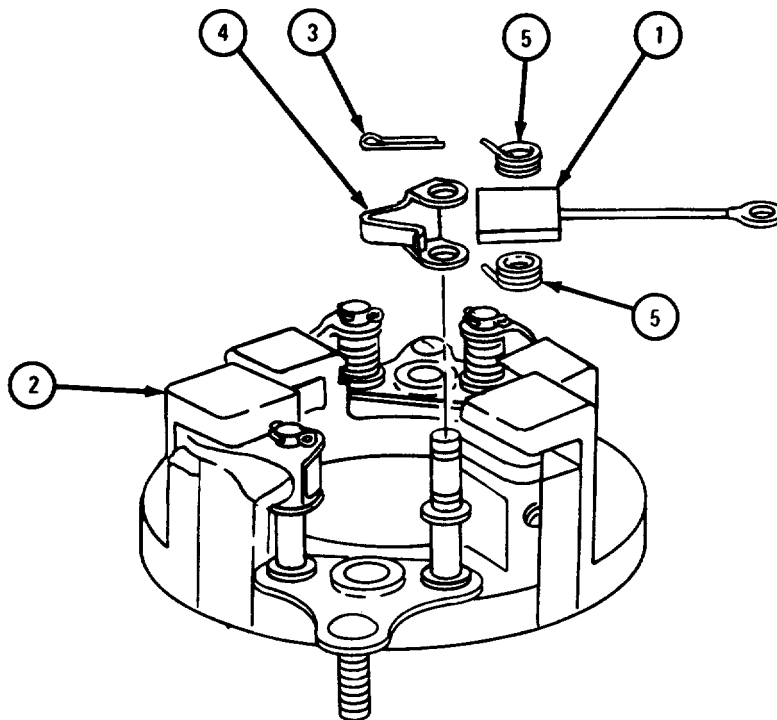
TA 103661

Figure 2-8. Bearing Driver Fabrication Instructions

FRAME 2 |

1. Lift four brushes (1) from brush holder (2) .
2. Take out four cotter pins (3), four brush levers (4), and four brush springs (5) from post of brush holder (2). Throw away cotter pins.

END OF TASK



TA 103662

d. Cleaning. There are no special cleaning procedures needed. Refer to cleaning procedures given in para 1-3.

e. Inspection and Repair.

FRAME 1

NOTE

Readings must be within limits given in table 2-5. If readings are not within given limits, generator is non-repairable.

1. Check that end housing (1) and bearing retainers (2 and 3) have no cracks or breaks. If parts are damaged, generator is nonrepairable.
2. Measure end housing bearing bore (4).
3. Check that screws (5) are not bent or broken and that they have no stripped threads or damaged heads. If screws are damaged, get new ones.
4. Measure bearing (6) inside diameter (7) and outside diameter (8). If inside and outside diameters are not within limits given in table 2-5, get new bearing.
5. Check that bearing (6) is not damaged. Refer to TM 9-214.

GO TO FRAME 2

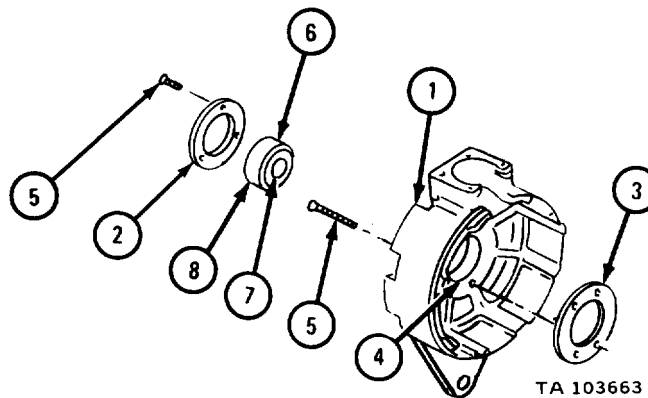


Table 2-5. End Housing Assembly Wear Limits

| Index Number | Item /Point of Measurement | Size and Fit of New Parts (inches) | Wear Limits (inches) |
|--------------|---|------------------------------------|----------------------|
| 4 | Inside diameter of end housing bearing bore | 1.8497 to 1.8501 | None |
| 7 | Inside diameter of end housing bearing | 0.7870 to 0.7874 | None |
| 8 | Outside diameter of end housing bearing | 1.8499 to 1.8504 | None |

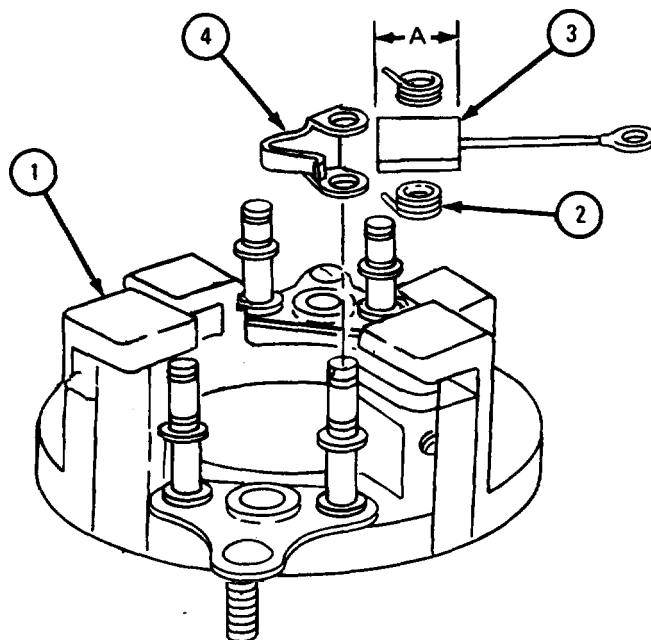
FRAME 2

NOTE

If parts are damaged, get new ones.

1. Check that brush holder (1) is not cracked or broken and that it does not have bent or loose studs.
2. Check that brush springs (2) are not burned or overheated. If spring is overheated, get a new one.
3. Check that leads on brushes (3) are not loose, broken or frayed.
4. Measure distance A on brushes (3). Brush length must be at least 5/8 inch.
5. Check brush levers (4) to see that they are not bent, broken or cracked.

END OF TASK



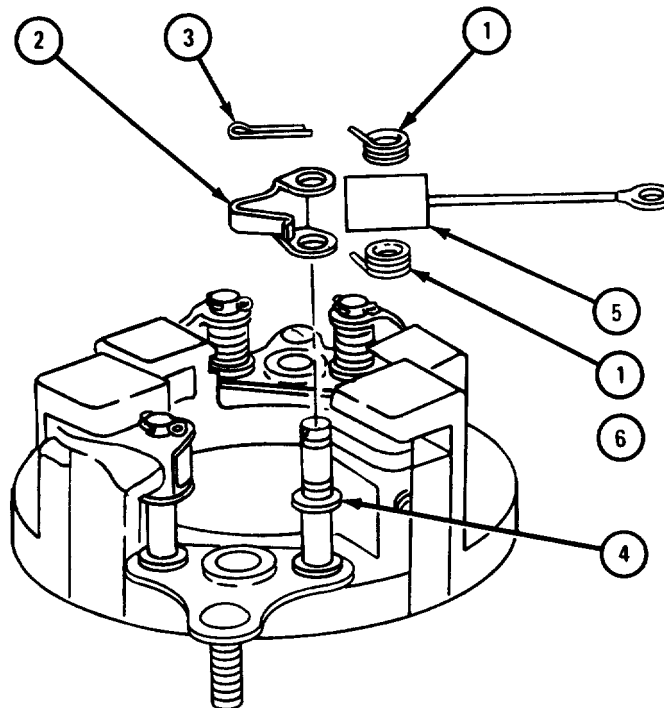
TA 103664

f. Assembly.

FRAME 1

1. Put four brush springs (1), four brush levers (2), and four cotter pins (3) on post of brush holder (4).
2. Put four brushes (5) halfway in brush holders (6).

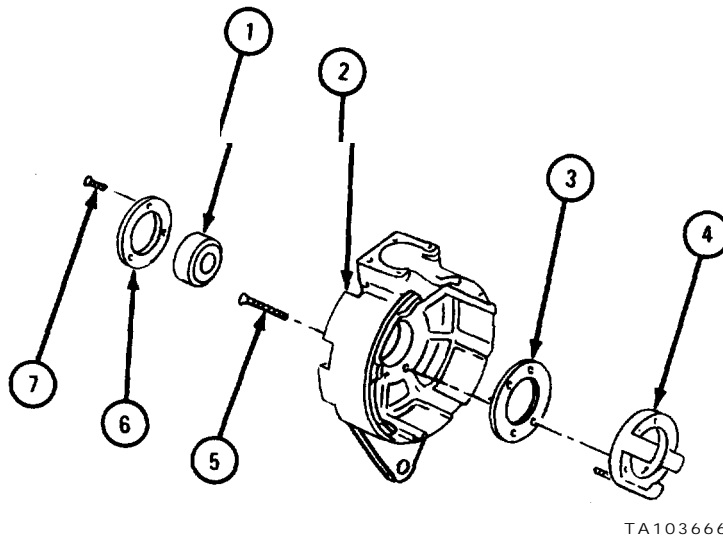
GO TO FRAME 2



TA103665

FRAME 2

1. Press bearing (1) into base of slipring end housing (2).
 2. Place bearing retainer (3) and brush holder (4) on slipring end housing (2) and put in four screws (5).
 3. Put bearing retainer (6) on slipring end bell (2). Put in three screws (7).
- END OF TASK



TA103666

g. Replacement.

(1) Models 5504AA and 5504AB.

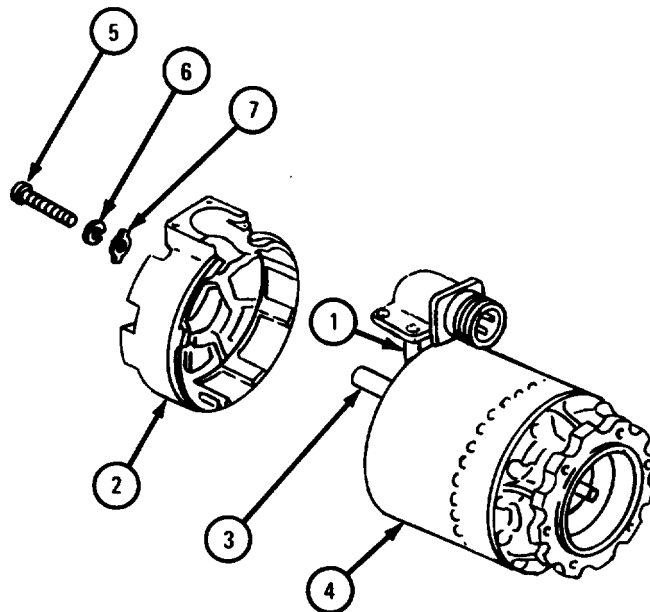
FRAME 1

NOTE

Make sure that connector leads (1) do not get damaged when pressing slipring end housing (2) onto rotor shaft (3).

1. Check that connector leads (1) are out of the way. Press slipring end housing (2) onto rotor shaft (3).
2. Align scribe marks on slipring end housing (2) and stator (4). Put in six screws (5) with six lockwashers (6) and six tabbed washers (7).

GO TO FRAME 2

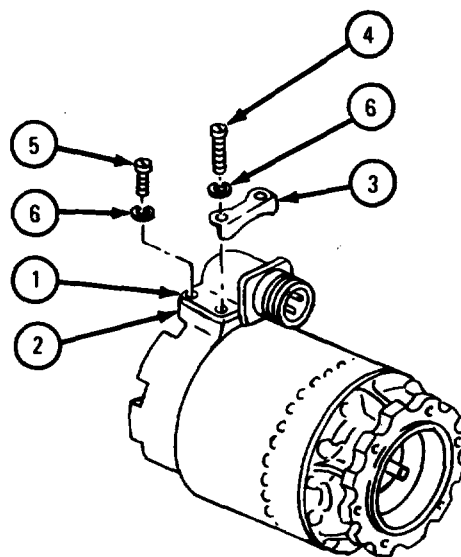


TA103667

FRAME 2

1. Place connector elbow (1) on slipring end housing (2).
2. Place connector cover (3) on elbow (1) so that cover seals slipring end housing (2). Put in two screws (4), two screws (5), and four lockwashers (6).

GO TO FRAME 3



TA103668

FRAME 3

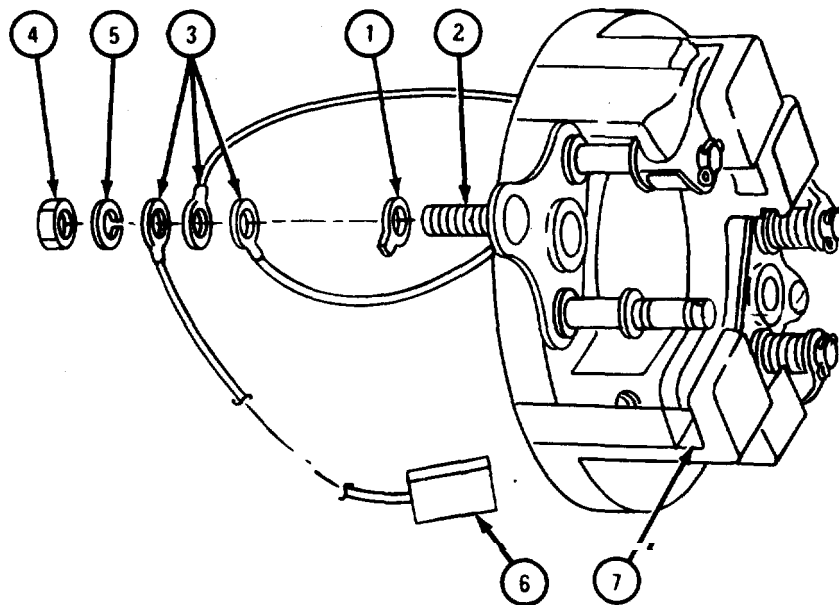
1. Put two key washers (1) on terminals (2).
2. Place leads (3) on two terminals (2) as tagged. Take off tags.
3. Put two nuts (4) and lockwashers (5) on two terminals (2). Lock nuts by bending tabs on washers (1).
4. Push four brushes (6) all the way into brush holders (7).

NOTE

Follow-on Maintenance Action Required:

Replace fan and hub assembly. Refer to para 2-17.

END OF TASK



T/A 103669

(2) Model 5300GP.

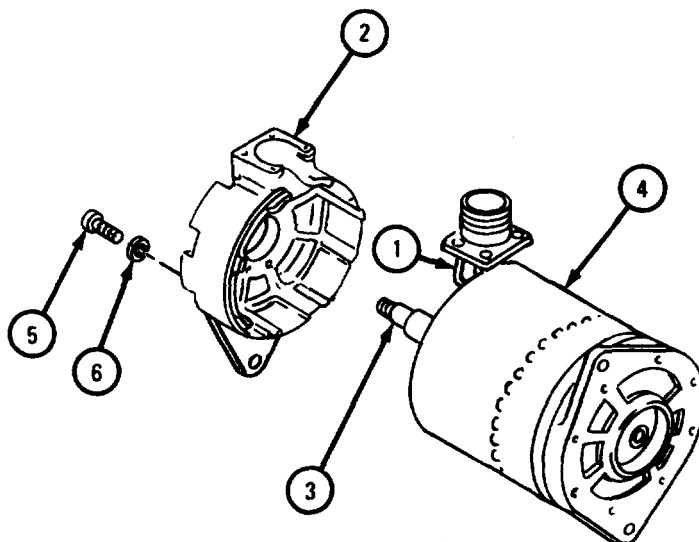
FRAME 1

NOTE

Make sure that connector leads (1) do not get damaged when pressing slipring end housing (2) onto rotor shaft (3).

1. Check connector leads (1) and press slipring end housing (2) into rotor shaft (3).
2. Align scribe marks on slipring end housing (2) and stator (4). Put in seven screws (5) and seven lockwashers (6).

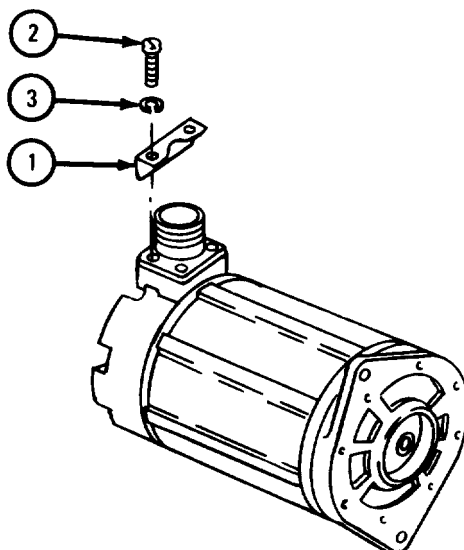
GO TO FRAME 2



TA104255

FRAME 2

1, Put on cover plate (1). Put in four screws (2) with four lockwashers (3).
GO TO FRAME 3



TA 104256

FRAME 3

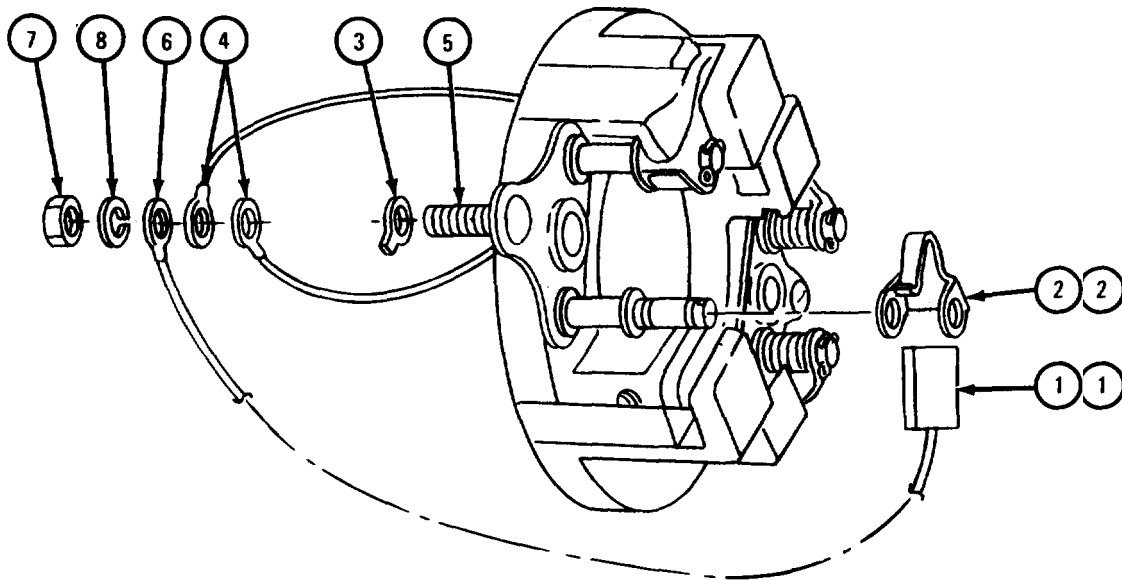
1. Push four brushes (1) and four brush levers (2) in place.
2. Put two key washers (3) and four brush leads (4) on two terminals (5).
3. Put two terminal leads (6), two nuts (7), and lockwashers (8) on two terminals (5). Bend up tabs on two key washers (3).

NOTE

Follow-on Maintenance Action Required:

Replace fan and hub assembly. Refer to para 2-17.

END OF TASK



TA 104257

2-19. DRIVE END BELL AND ROTOR ASSEMBLY.

TOOLS: No special tools required

SUPPLIES: None

PERSONNEL: One

EQUIPMENT CONDITION : Generator removed from vehicle, pulley removed from generator.

a. Preliminary Procedures.

- (1) Clean outside of generator before disassembly. Refer to para 1-3.
- (2) Remove fan and hub assembly. Refer to para 2-17.
- (3) Remove slipring end housing. Refer to para 2-18.

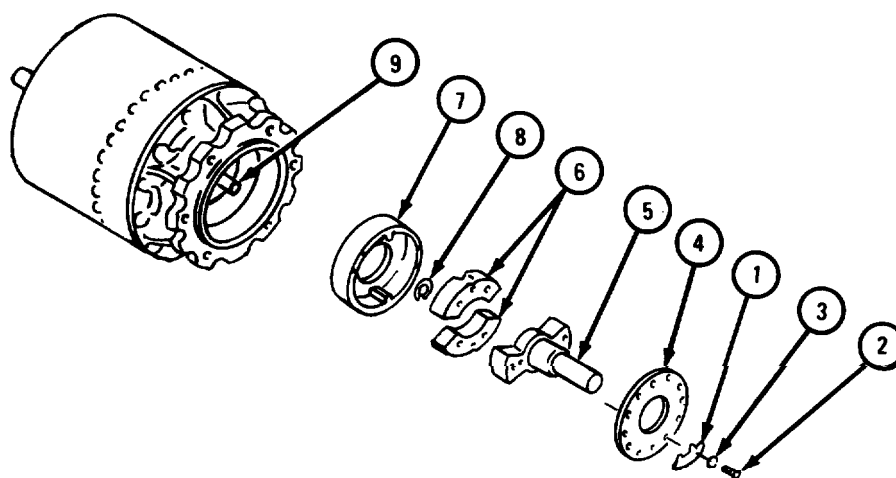
b. Removal.

- (1) Models 5504AA and 5504AB.

FRAME 1

1. Straighten tabs on six locking plates (1). Take out 12 screws (2) and lockwashers (3) and six locking plates.
2. Take off coupling cover (4). Pull out driveshaft (5) and take two drive blocks (6) from block holder (7).
3. Take retaining ring (8) from rotor shaft (9) and take off block holder (7).

GO TO FRAME 2

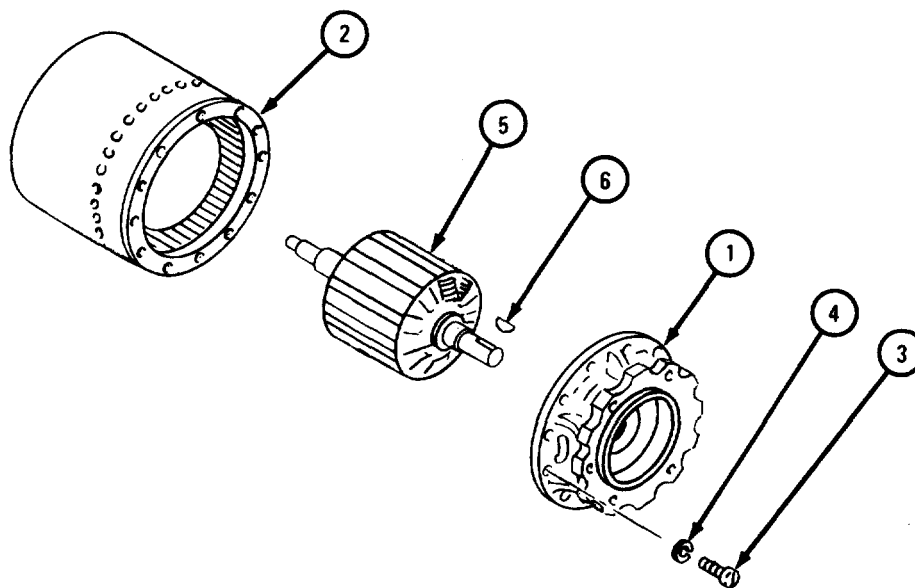


TA 103670

FRAME 2

1. Scribe a mark across drive end bell (1) and stator (2).
2. Take out seven screws (3) and lockwashers (4).
3. Take drive end bell (1) and rotor (5) assembly out of stator (2).
4. Using puller, press rotor (5) out of drive end bell (1).
- 5* Take out machine key (6).

END OF TASK



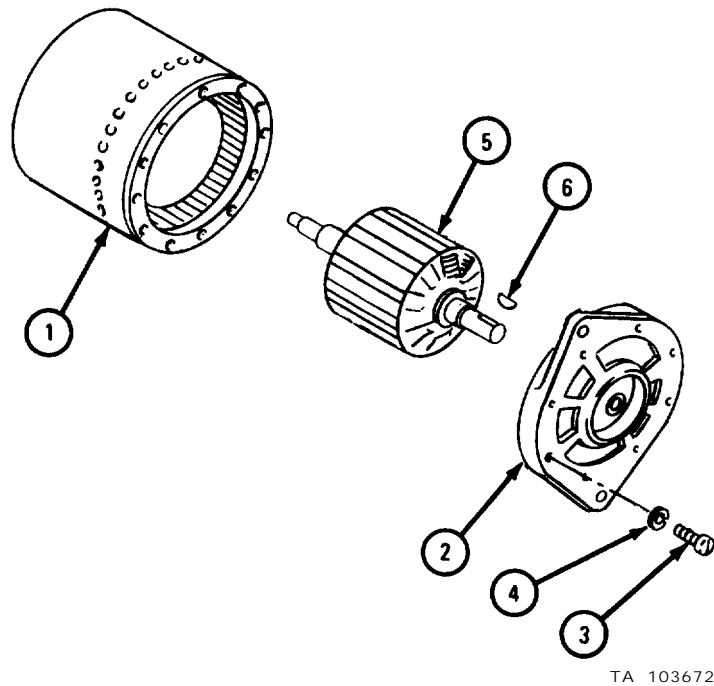
TA 103671

(2) Model 5300GP.

FRAME 1

1. Scribe a mark across stator (1) and drive end bell (2).
2. Take out seven screws (3) and lockwashers (4).
3. Take drive end bell (2) and rotor (5) assembly out of stator (1).
4. Take woodruff key (6) out of shaft of rotor (5).
5. Using puller, drive shaft of rotor (5) from drive end bell (2).

END OF TASK



c. Disassemble.

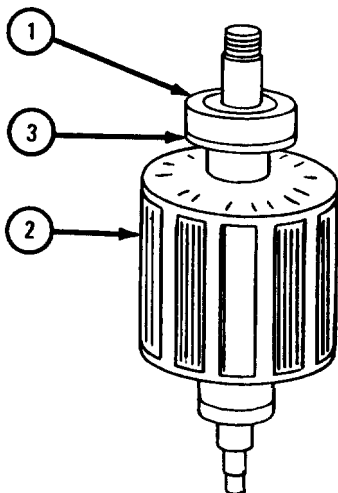
FRAME 1

NOTE

Bearing (1) may come off with drive end housing. If so, press out bearing from drive end housing.

1. Using arbor press, take drive end housing bearing (1) off shaft of rotor (2) as shown. On model 5300GP, take washer (3) off shaft of rotor (2).

END OF TASK



TA 103673

d. Cleaning. There are no special cleaning procedures needed. Refer to cleaning procedures given in para 1-3.

e. Inspection and Repair.

(1) Inspection.

FRAME 1

NOTE

If rotor (1) is not within limits given in tables 2-6 and 2-7, generator is nonrepairable.

1. Measure outside diameter of sliprings (2).
2. Measure outside diameter of shaft at fan end bearing seat (3).
3. Measure outside diameter of shaft at fan hub seat (4).
4. Measure outside diameter of shaft at drive end bearing seat (5).
5. Measure outside diameter of shaft at drive end (6).

NOTE

If bearing (7) is not within limits given in tables 2-6 and 2-7, get new bearing.

6. Measure drive end bearing (7) inside diameter (8).
7. Measure drive end bearing (7) outside diameter (9).

GO TO FRAME 2

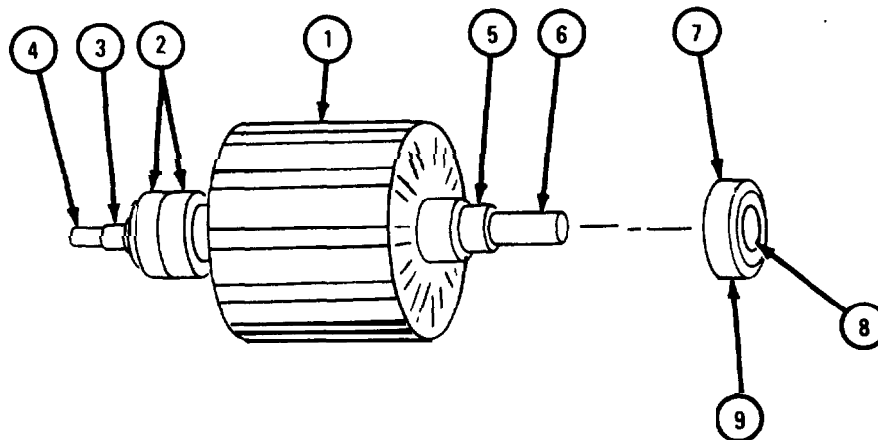


Table 2-6. Drive End Bell and Rotor Assembly (Models 5504AA and 5504AB)
Wear Limits

| Index Number | Item /Point of Measurement | Size and Fit of New Parts (inches) | Wear Limits (inches) |
|--------------|---|------------------------------------|----------------------|
| 2 | Outside diameter of slipring | 1.8430 to 1.8530 | 1.7500 |
| 3 | Outside diameter of shaft at fan bearing seat | 0.7874 to 0.7878 | None |
| 4 | Outside diameter of shaft at fan hub seat | 0.6250 to 0.6255 | None |
| 5 | Outside diameter of shaft at drive end bearing seat | 0.9842 to 0.9846 | None |
| 6 | Outside diameter of shaft at drive end | 0.6245 to 0.6250 | None |
| 8 | Inside diameter of drive end bearing | 0.9839 to 0.9843 | None |
| 9 | Outside diameter of drive end bearing | 2.0467 to 2.0472 | None |

Table 2-7. Drive End Bell and Rotor Assembly (Model 5300GP) Wear Limits

| Index Number | Item /Point of Measurement | Size and Fit of New Parts (inches) | Wear Limits (inches) |
|--------------|---|------------------------------------|----------------------|
| 2 | Outside diameter of slipring | 1.8480 to 1.8530 | 1.7500 |
| 3 | Outside diameter of shaft at fan end bearing seat | 0.7874 to 0.7878 | None |
| 4 | Outside diameter of shaft at fan hub seat | 0.6250 to 0.6255 | None |
| 5 | Outside diameter of shaft at drive end bearing seat | 0.9843 to 0.9847 | None |
| 6 | Outside diameter of shaft at drive end | 0.8740 to 0.8745 | None |
| 8 | Inside diameter of drive end bearing | 0.9839 to 0.9843 | None |
| 9 | Outside diameter of drive end bearing | 2.4404 to 2.4409 | None |

FRAME 2**NOTE**

If end bell is damaged or is not within limits given in tables 2-8 and 2-9, generator is nonrepairable.

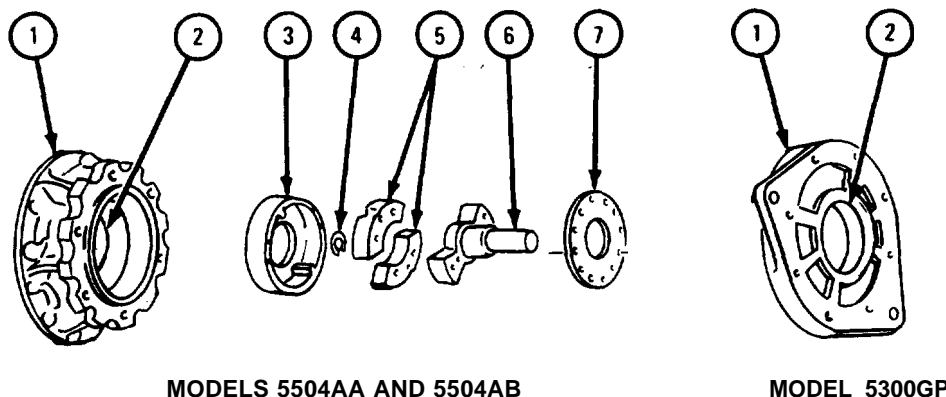
1. Check that drive end bell (1) is not cracked, bent or warped.
2. Measure inside diameter of drive end bell (1) bearing bore (2).

NOTE

When working on models 5504AA and 5504AB, if any part of drive assembly is damaged, generator is nonrepairable.

3. Check that block holder (3), retaining ring (4), drive blocks (5), drive shaft (6), and coupling cover (7) are not bent, broken cracked or warped.

GO TO FRAME 3



MODELS 5504AA AND 5504AB

MODEL 5300GP

TA 103675

Table 2-8. End Bell Housing (Models 5504AA and 5504AB) Wear Limits

| Index Number | Item /Point of Measurement | Size and Fit of New Parts (inches) | Wear Limits (inches) |
|--------------|--|------------------------------------|----------------------|
| 2 | Inside diameter of drive end bell bearing bore | 2.0465 to 2.0468 | None |

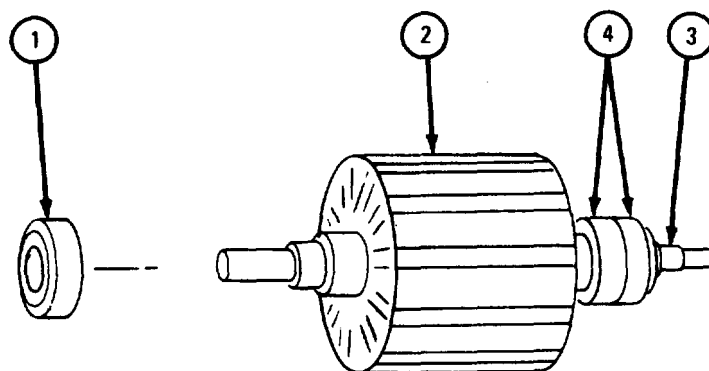
Table 2-9. End Bell Housing (Model 5300GP) Wear Limits

| Index Number | Item /Point of Measurement | Size and Fit of New Parts (inches) | Wear Limits (inches) |
|--------------|--|------------------------------------|----------------------|
| 2 | Inside diameter of drive end bell bearing bore | 2.4407 to 2.4412 | None |

FRAME 3

1. Check that bearing (1) is not damaged. Refer to TM 9-214. If bearing is damaged, get a new one.
2. Using multimeter, check rotor (2) for grounds by touching one test probe of multimeter to rotor shaft (3) and other test probe to one slipring (4). Ohmmeter reading must be over 10,000 ohms. If it is not, generator is nonrepairable.
3. Do step 2 again for other slipring (4).
4. Using multimeter, check resistance of sliprings (4) by touching ohmmeter test probes to each slipring. Resistance must be between 1.5 and 2.5 ohms. If it is not, generator is nonrepairable.
5. Check slipring (4) runout. Refer to para 2-9e.
6. Check that rotor shaft (3) is straight. Refer to para 2-9e.

END OF TASK



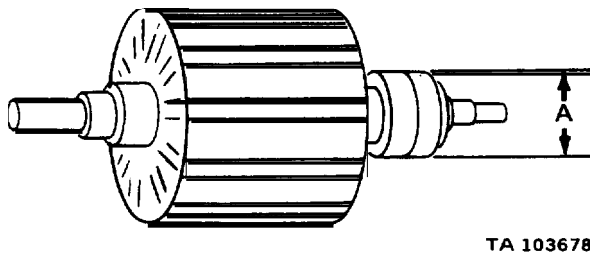
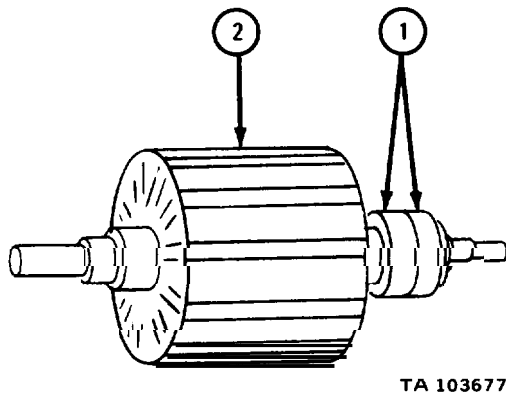
TA 103676

(2) Repair.

FRAME 1

1. If runout of sliprings (1) is more than 0.001 inch, send rotor (2) to machine shop to have sliprings turned down. See figure 2-9.

END OF TASK



| Index Number | Item/Point of Measurement | Size and Fit of New Parts (inches) | Wear Limits (inches) |
|--------------|-------------------------------|------------------------------------|----------------------|
| A | Outside diameter of sliprings | 1.8430 to 1.8530 | 1.7500 |

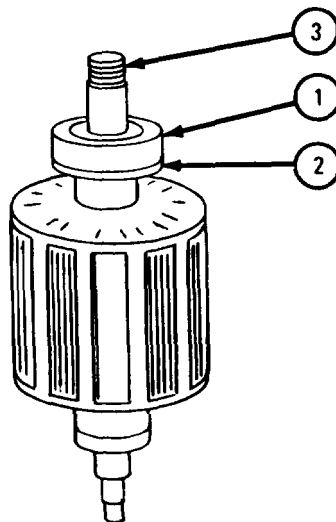
Figure 2-9. Sliprings (Models 5504AA, 5504AB , and 5300GP) Allowable Wear Limits

f. Assembly.

FRAME 1

1. Using arbor press, press drive end bearing (1) (models 5504AA and 5504AB) or drive end bearing and washer (2) (model 5300GP) onto rotor shaft (3).

END OF TASK

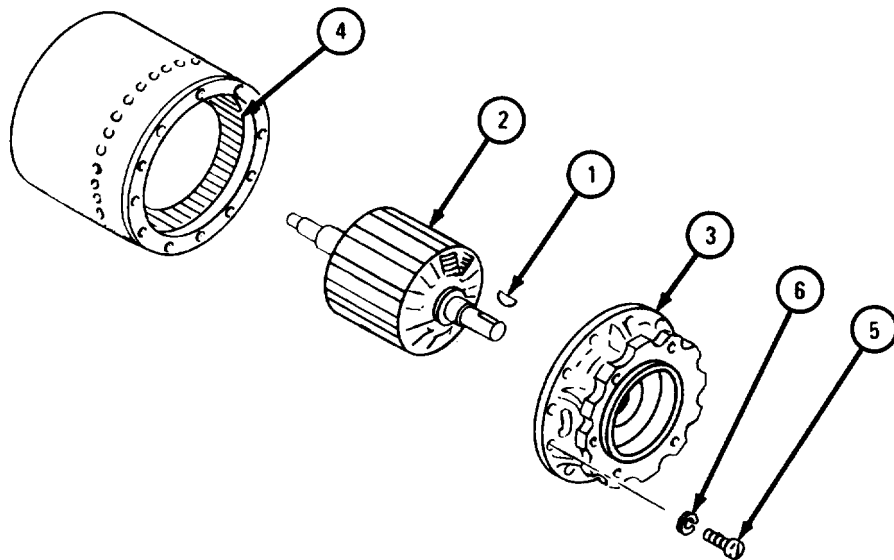


TA 103679

g. Replacement.**(1) Models 5504AA and 5504AB.****FRAME 1**

1. Put woodruff key (1) in shaft of rotor (2).
2. Press rotor (2) and drive end bell (3) together.
3. Place rotor (2) and drive end bell (3) assembly into stator (4).
4. Aline scribe marks, and put in seven screws (5) and lockwashers (6).

GO TO FRAME 2



TA 103680

FRAME 2

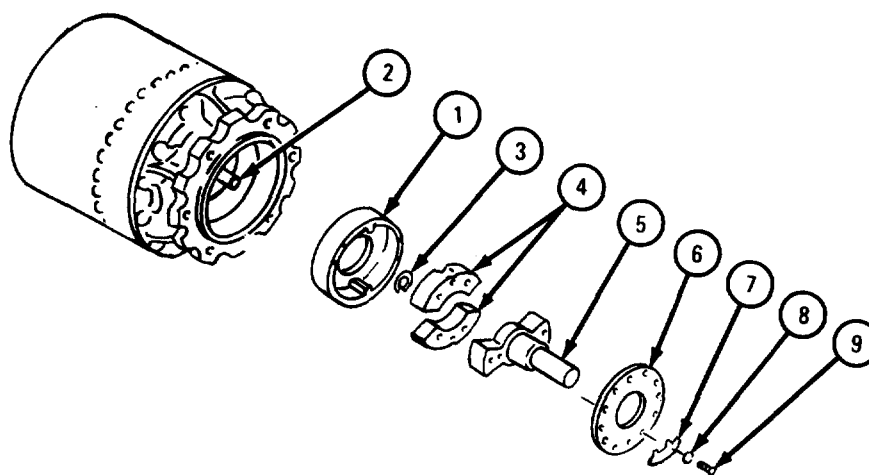
1. Put block holder (1) on rotor shaft (2) with retaining ring (3).
2. Put two drive blocks (4) and drive shaft (5) in block holder (1).
3. Put coupling cover (6) in place. Put in six locking plates (7), 12 lockwashers (8), and 12 screws (9).
4. Bend tabs on six locking plates (7).

NOTE

Follow-on Maintenance Action Required:

1. Replace slipring end housing. Refer to para 2-18.
2. Replace fan and hub assembly. Refer to para 2-17.

END OF TASK



TA 103681

(2) Model 5300GP.

FRAME 1

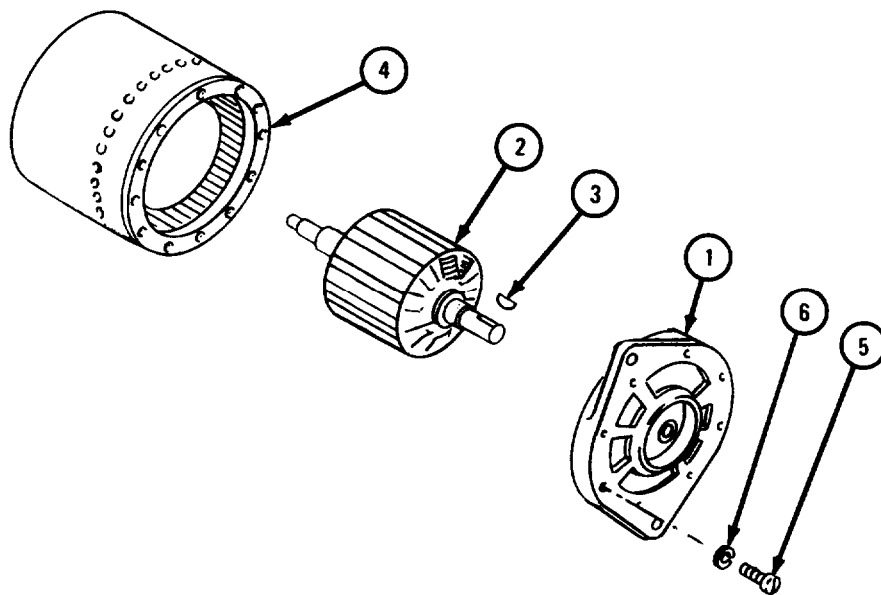
1. Press drive end bell (1) and rotor (2) together.
2. Put woodruff key (3) in keyway of rotor (2) shaft.
3. Put drive end bell (1) and rotor (2) assembly into stator (4).
4. Aline scribe marks and put in seven screws (5) and lockwashers (6).

NOTE

Follow-on Maintenance Action Required:

1. Replace slipring end housing. Refer to para 2-18.
2. Replace fan and hub assembly. Refer to para 2-17.

END OF TASK



TA 103682

2-20. STATOR AND CONNECTOR ASSEMBLY.

TOOLS : No special tools required

SUPPLIES: None

PERSONNEL: One

EQUIPMENT CONDITION: Generator removed from vehicle, pulley removed from generator.

a. Preliminary Procedures.

(1) Clean outside of generator before disassembly. Refer to para 1-3.

(2) Remove fan and hub assembly. Refer to para 2-17.

(3) Remove slipring end housing. Refer to para 2-18.

(4) Remove drive end bell and rotor assembly. Refer to para 2-19.

b. Cleaning. There are no special cleaning procedures needed. Refer to cleaning procedures given in para 1-3.

c. Inspection.

FRAME 1

1. Check that stator (1) and connector (2) have no cracks or breaks. If cracks or breaks are found, generator is nonrepairable,
2. Check that connector (2) has no loose rims or stripped threads. If connector is damaged, generator is nonrepairable.

CAUTION

Do not use a battery or test lamp to make a continuity test. Reverse battery connection will burn out diodes instantly.

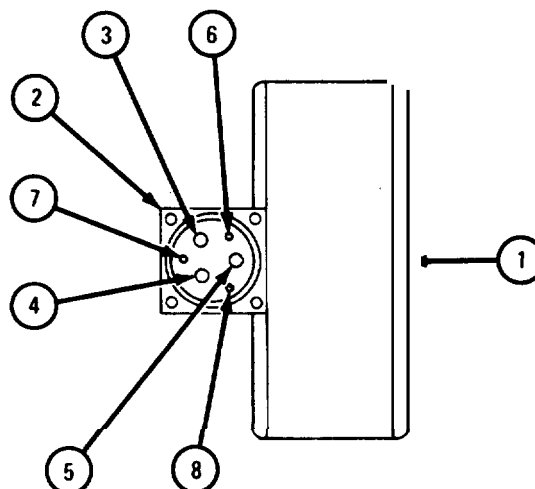
3. Using multimeter, check stator (1) for continuity. Touch test probes of multimeter to pins (3, 4, and 5, and 3 and 5). Multimeter must show continuity between each set of pins.

NOTE

Pins (6, 7, and 8) are not tested for continuity. Make sure that they are not touching stator (1).

4. Using multimeter, check stator (1) for open circuits. Touch one test probe of multimeter to stator housing, and the other test probe to each pin (3 through 8) on connector (2). Each check must show an open circuit.

END OF TASK



TA 103683

d. Repair.

FRAME 1

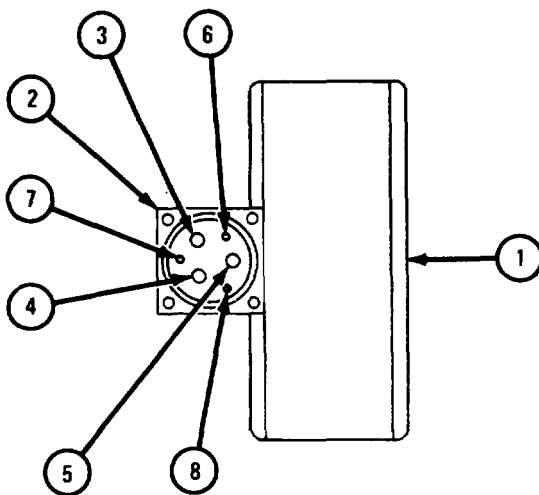
1. Solder loose or broken connections on stator (1) and connector (2).
2. Retest stator (1) and connector (2) assembly after soldering. Refer to para 2-20c. If continuity is not made between pins (3, 4, and 5), generator is nonrepairable. If there is ground between any pins (3 through 8) and housing (1), generator is nonrepairable.

NOTE

Follow-on Maintenance Action Required:

1. Replace drive end bell and rotor assembly. Refer to para 2-19.
2. Replace slipring end housing. Refer to para 2-18.
3. Replace fan and hub assembly. Refer to para 2-17.

END OF TASK



TA 103683

Section VII. LEECE-NEVILLE GENERATOR MODEL 2184AC

2-21. FAN, END BELL, AND ROTOR ASSEMBLY.

TOOLS: No special tools required

SUPPLIES : Brush holder preformed packing
Lip seal (2)
End housing preformed packing (2)
Sealant, MIL-S-45180
Ball bearing and roller bearing grease, MIL-G-18709
Masking tape, PPP-T-42C

PERSONNEL: One

EQUIPMENT CONDITION : Generator removed from vehicle, pulley removed from generator.

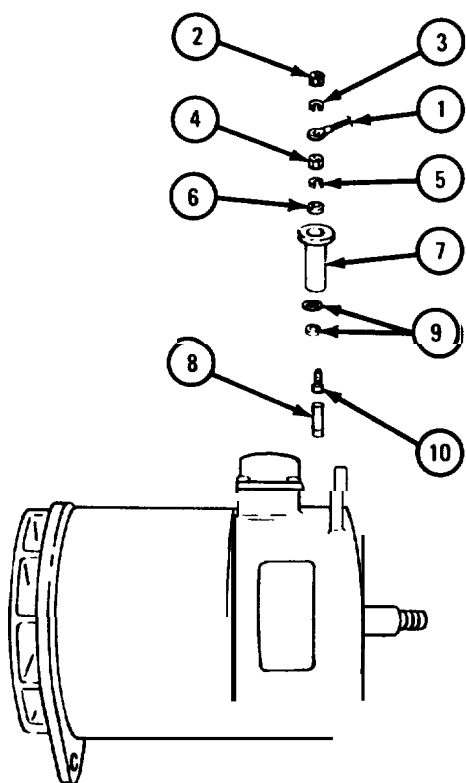
a. Preliminary Procedure. Clean generator before disassembly. Refer to para 1-3.

b. **Removal.**

FRAME 1

1. Take rubber sealant off brush holder terminals (1).
- 2* Take off nut (2) and lockwasher (3). Tag and take off terminal (1).
3. Take off nut (4), lockwasher (5), and spacer (6).
4. Take out brush holder (7), brush (8), preformed packings (9), and screw with washer (10). Throw packings away.
5. Do steps 2 through 4 again for other brush assembly.

GO TO FRAME 2

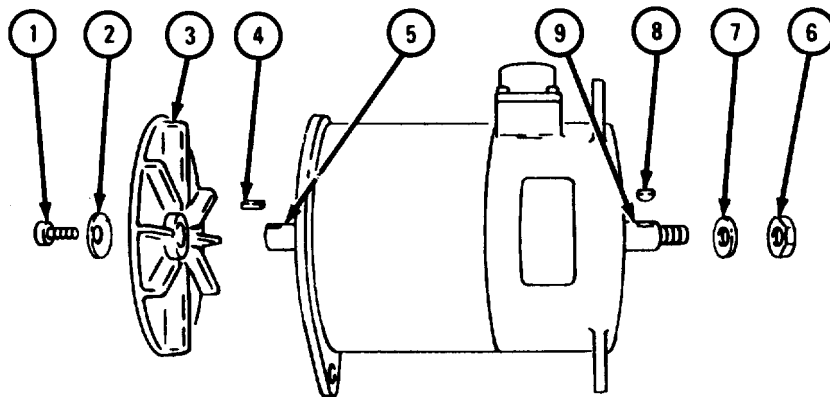


TA 103684

FRAME 2

1. Take screw (1), washer (2), fan (3), and woodruff key (4) off rotor shaft (5).
2. Take nut (6), washer (7), and woodruff key (8) off drive end of rotor shaft (9).

GO TO FRAME 3

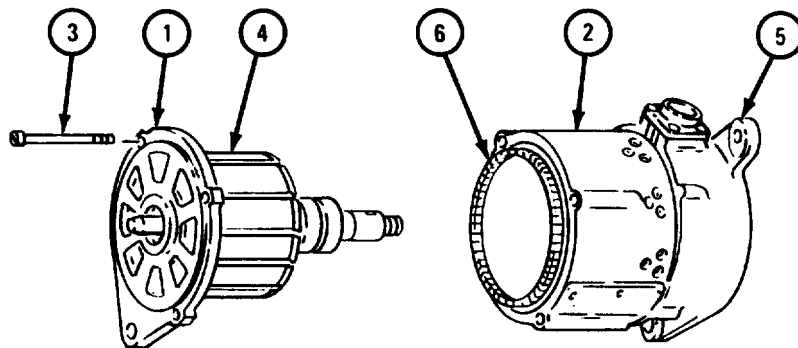


TA 103685

FRAME 3

1. Scribe a line across end bell (1) and shroud (2).
2. Take out four screws (3).
3. Using puller, take out end bell (1) and rotor (4) assembly from drive end bell (5) and stator (6) assembly.

END OF TASK

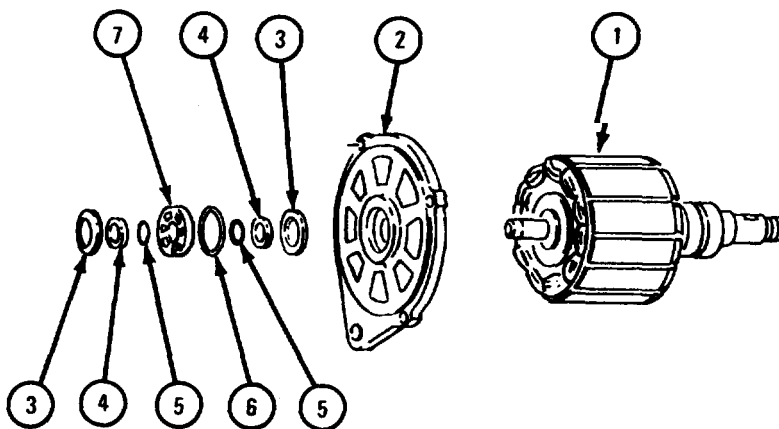


TA 103686

c. Disassembly.**FRAME 1**

1. Using puller, drive rotor (1) from end bell (2).
2. Take out two lip seals (3), two spacers (4), two preformed packings (5), packing (6), and bearing (7) from end housing (2). Throw away seals and packings.

END OF TASK



TA 103687

d. Cleaning. There are no special cleaning procedures needed. Refer to cleaning procedures given in para 1-3.

e. Inspection.

FRAME 1

NOTE

If rotor (1) is not within limits given in table 2-10, generator is nonrepairable.

1. Measure outside diameter of shaft (2) at end housing.
2. Measure outside diameter of sliprings (3).
3. Measure outside diameter of drive end bearing seat (4).
4. Measure outside diameter of drive end of shaft (5),

NOTE

If end housing (6) is not within limits given in table 2-10, generator is nonrepairable.

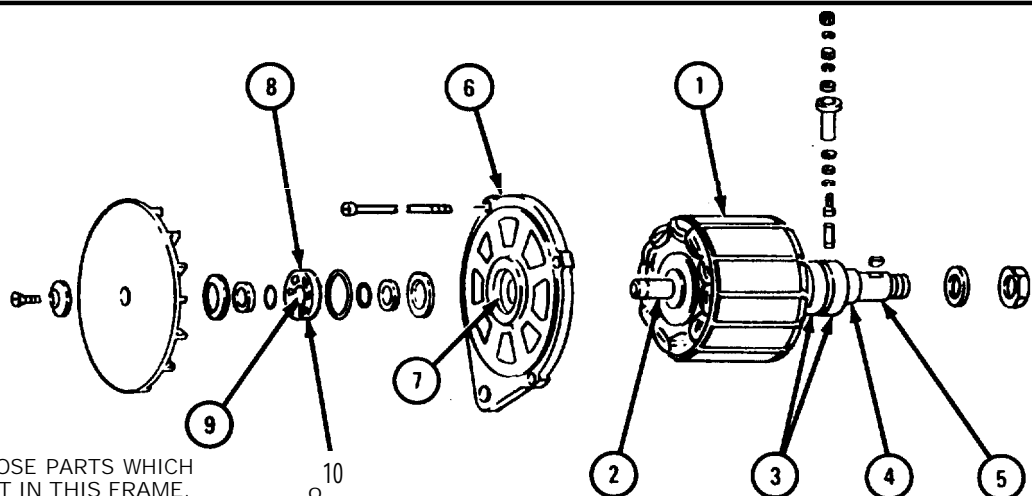
5. Measure inside diameter of end housing bearing bore (7).

NOTE

If bearing (8) is not within limits given in table 2-10, get a new bearing.

6. Measure bearing (8) inside diameter (9).
7. Measure bearing (8) outside diameter (10).

GO TO FRAME 2



NOTE: CHECK ONLY THOSE PARTS WHICH ARE CALLED OUT IN THIS FRAME. PARTS WITHOUT CALLOUTS ARE SHOWN ONLY FOR REFERENCE PURPOSES OR ARE CHECKED IN ANOTHER FRAME.

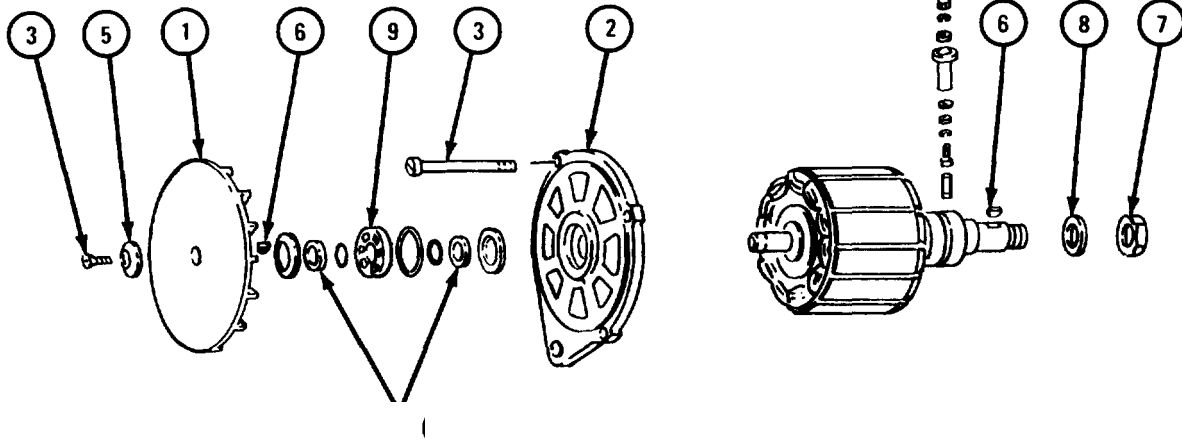
Table 2-10. Fan, End Bell, and Rotor Assembly (Model 2184AC) Wear Limits

| Index Number | Item /Point of "Measurement | Size and Fit of New Parts (inches) | Wear Limits (inches) |
|--------------|---|------------------------------------|----------------------|
| 2 | Outside diameter of shaft at end housing | 0.6695 to 0.6693 | None |
| 3 | Outside diameter of sliprings | 1.6350 to 1.620 | 1.580 |
| 4 | Outside diameter of drive end bearing seat of shaft | 0.9847 to 0.9844 | None |
| 5 | Outside diameter of drive end of shaft | 0.8745 to 0.8740 | None |
| 7 | Inside diameter of end housing bore | 1.5746 to 1.5751 | None |
| 9 | Inside diameter of end housing bearing | 0.693 to 0.6690 | None |
| 10 | Outside diameter of end housing bearing | 1.5748 to 1.5743 | None |

FRAME 2 1

1. Check that fan (1) is not cracked or broken. If fan is damaged, generator is nonrepairable.
2. Check that end bell (2) has no cracks, breaks or warping. If end bell is damaged, generator is nonrepairable.
3. Check that all screws (3) are not bent or broken and that they have no damaged heads or stripped threads. If screws are damaged, get new ones.
4. Check that spacers (4) and washers (5) are not cracked or worn. If parts are damaged, get new ones.
5. Check that woodruff keys (6) are not bent or broken. If keys are damaged, get new ones.
6. Check that nut (7) and washer (8) are not worn, stripped or damaged. If parts are damaged, get new ones.
7. Check that bearing (9) is not damaged. Refer to TM 9-214. If bearing is damaged, get a new one.

GO TO FRAME 3



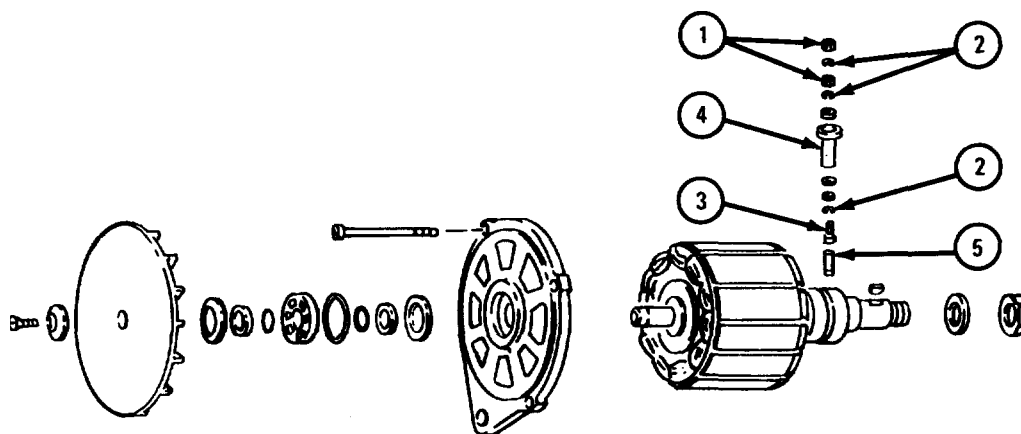
NOTE: CHECK ONLY THOSE PARTS WHICH ARE CALLED OUT IN THIS FRAME. PARTS WITHOUT CALLOUTS ARE SHOWN ONLY FOR REFERENCE PURPOSES OR ARE CHECKED IN ANOTHER FRAME.

TA 103689

FRAME 3

1. Check that nuts (1), washers (2), and screw (3) are not worn, stripped, bent or broken and that they have no damaged threads. If parts are damaged, get new ones.
2. Check that brush holder (4) is not cracked or broken. If brush holder is damaged, get a new one.
3. Check that brushes (5) are not oil soaked, that they have no loose leads, and that they are not less than 1/4 inch long. If brushes are worn or damaged, get new ones.

GO TO FRAME 4



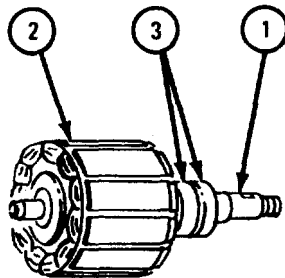
NOTE: CHECK ONLY THOSE PARTS WHICH ARE CALLED OUT IN THIS FRAME. PARTS WITHOUT CALLOUTS ARE SHOWN ONLY FOR REFERENCE PURPOSES OR ARE CHECKED IN ANOTHER FRAME.

TA 103690

FRAME 4

1. Check that rotor shaft (1) has no burred or stripped threads.
2. Check that rotor (2) has no grounds using multimeter by touching one test probe of multimeter to rotor shaft (1) and other test probe to one slipring (3). Ohmmeter reading must be more than 10,000 ohms. If ohmmeter reading is not more than 10,000 ohms, generator is nonrepairable.
3. Do step 2 again for other slipring (3).
4. Check sliprings (3) resistance using multimeter by touching test probes of multimeter to each slipring. Resistance must be between 1.8 to 2.0 ohms. If resistance is not within limits, generator is not repairable.
5. Check sliprings (3) runout. Refer to para 2-9e.
6. Check that rotor shaft (1) is straight. Refer to para 2-9e.

END OF TASK



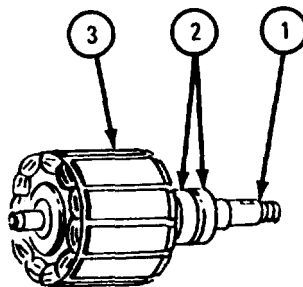
TA 103691

f. Repair.

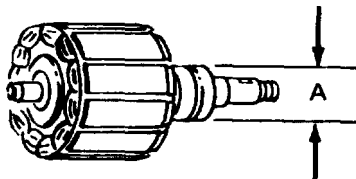
FRAME 1

1. If shaft threads (1) are damaged, clean up threads with a die. If threads cannot be fixed, generator is not repairable.
2. If runout of sliprings (2) is over 0.001 inch, send rotor (3) to machine shop to have sliprings turned. See figure 2-10.

END OF TASK



TA 103692



TA 103693

| Item Number | Item /Point of Measurement | Size and Fit of New Parts (inches) | Wear Limits (inches) |
|-------------|-------------------------------|------------------------------------|----------------------|
| A | Outside diameter of sliprings | 1.635 to 1.620 | 1.580 |

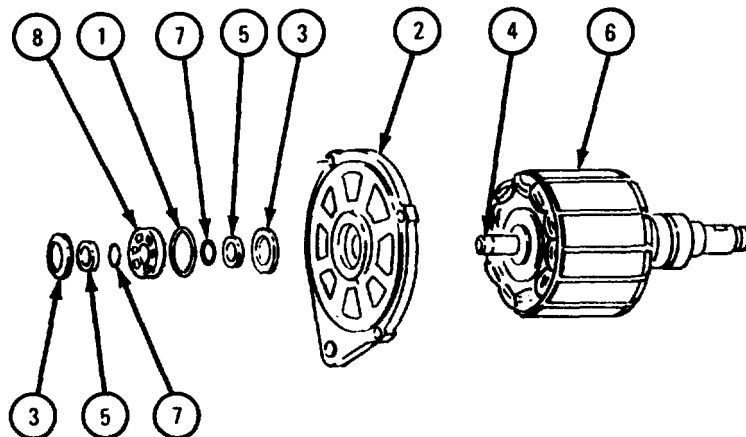
Figure 2-10. Sliprings (Model 2184AC) Wear Limits

g. Assembly.

FRAME 1

1. Put preformed packing (1) in bearing bore of end housing (2).
2. Press lip seal (3) into rotor side of end housing (2) with smooth side of seal facing away from housing. Coat outer edge of seal with sealant.
3. Place end housing (2) on short end of rotor shaft (4).
4. Slide spacer (5) over shaft (4) with counterbore facing away from rotor (6). Put a light coating of grease around spacer and seal (3).
5. Put preforming packing (7) over shaft (4) into spacer (5).
6. Press bearing (8) onto shaft (4) into end housing (2). Make sure to hold up both rotor (6) and end housing.
7. Fill cavity behind bearing (8) with grease.
8. Put preformed packing (7) into spacer (5) and slide spacer onto shaft (4) with counterbore facing rotor (6).
9. Put lip seal (3) into end housing (2) with smooth side of seal facing outward. Coat outer edge of seal with sealant.

END OF TASK



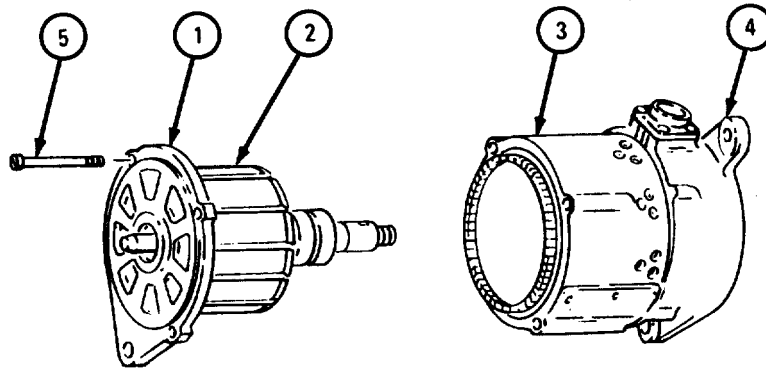
TA 103694

h. Replacement.

FRAME 1

1. Slide end bell (1) and rotor (2) assembly into stator (3) and drive end bell (4) assembly.
2. Aline scribe marks on end bell (1) and stator shroud (3) and put in four screws (5).

GO TO FRAME 2



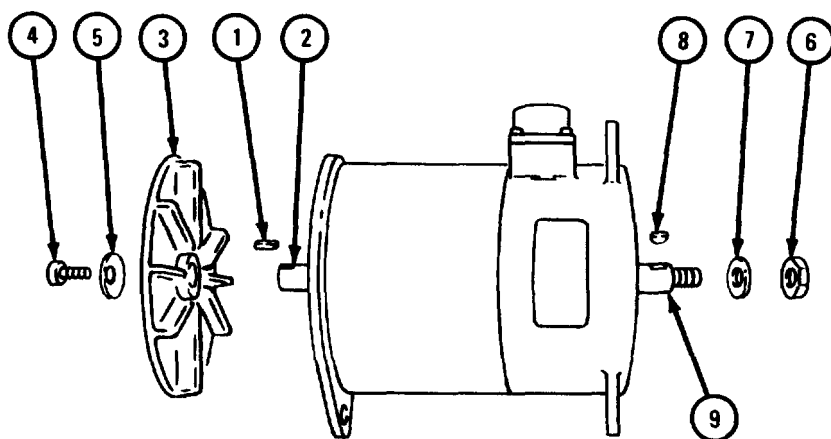
TA 103695

FRAME 2

1

1. Put woodruff key (1) into rotor shaft (2).
2. Slide fan (3) onto rotor shaft (2) and put in screw (4) and washer (5). Tighten screw (4) to 115 to 130 pound-inches.
3. Put nut (6), washer (7), and woodruff key (8) onto rotor shaft (9). Put tape around key.

GO TO FRAME 3

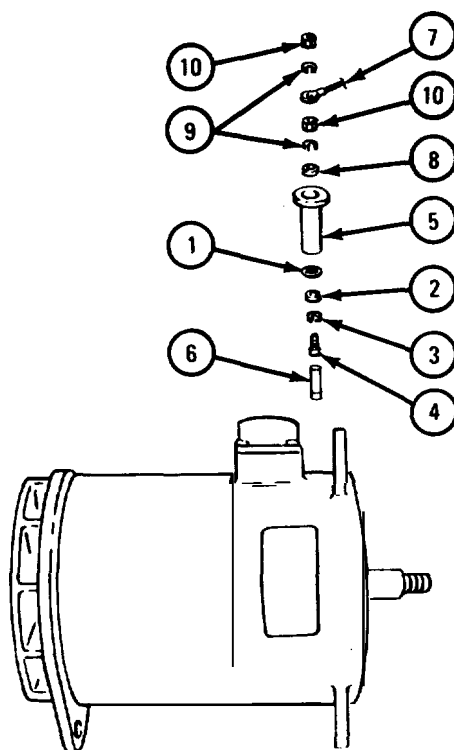


TA 103696

FRAME 3

1. Put preformed packing (1), preformed packing (2), guard washer (3), and screw (4) into brush holders (5). Put brushes (6) into brush holders.
2. Put leads (7) onto brush holders (5) as tagged. Takeoff tags. Put on guard washer (8), two lockwashers (9), and two nuts (10).
3. Put brush holders (5) into place. Put sealant over brush holders.

END OF TASK



TA 103697

2-22. DRIVE END HOUSING AND STATOR ASSEMBLY.

TOOLS : No special tools required

SUPPLIES : Rivet (3)
End housing lip seal
End housing preformed packing

PERSONNEL: One

EQUIPMENT CONDITION : Generator removed from vehicle, pulley removed from generator.

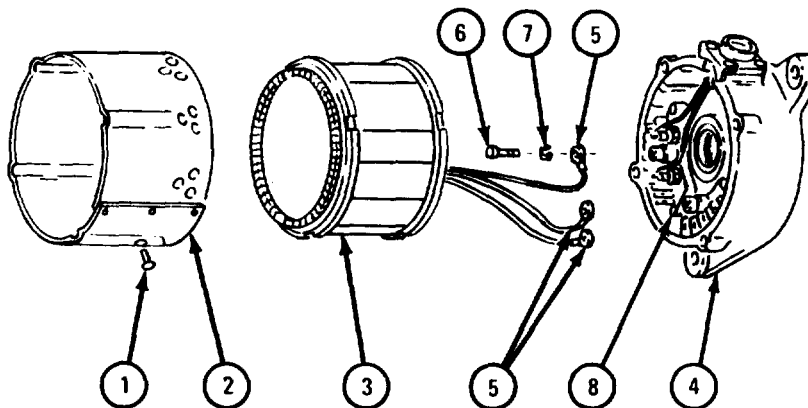
a. Preliminary Procedure. Remove fan, end bell, and rotor assembly. Refer to para 2-21.

b. Disassembly.

FRAME 1

1. Take out three rivets (1) and take off shroud (2) .
2. Scribe a mark across stator (2) and drive end bell (4).
3. Tag three stator leads (5).
4. Take out three screws (6) with lockwashers (7) and take stator leads (5) off rectifier mounts (8). Take off stator (3).

GO TO FRAME 2

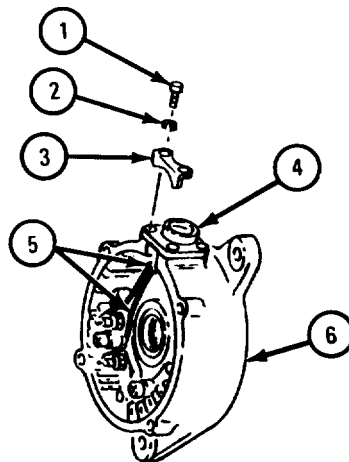


TA 10369S

FRAME 2

1. Take out four screws (1) with lockwashers (2). Lift cover (3) away to reach connector (4) wiring.
2. Unsolder diode leads (5) from connector (4) and take connector (4) off housing (6) .

GO TO FRAME 3



TA 103699

FRAME 3

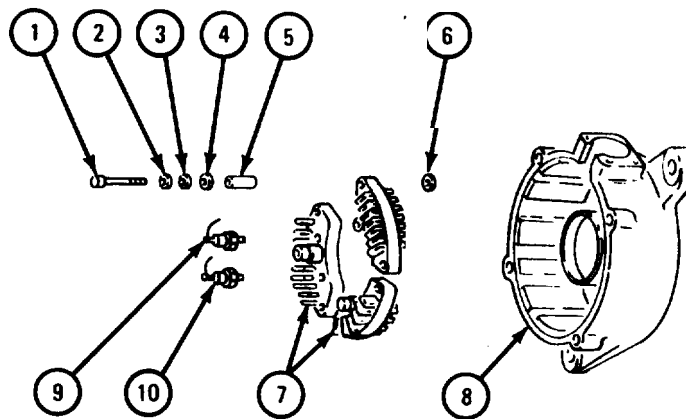
1. Take out six screws (1), guard washers (2), spring tension washer (3), insulation washers (4), sleeves (5), and guard washers (6). Take rectifier mounts (7) out of housing (8).

NOTE

Rectifier (9) must be kept apart from rectifiers (10).

2. Take out three rectifiers (9) and three rectifiers (10) from rectifier mounts (7).

GO TO FRAME 4

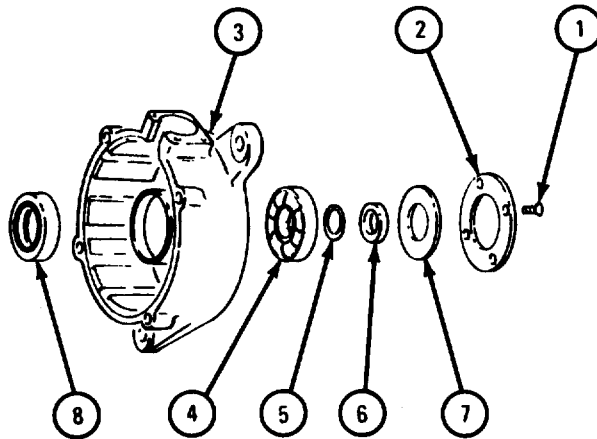


TA 103700

FRAME 4

1. Take out four screws (1) and take bearing retainer (2) from drive end housing (3).
2. Press bearing (4), preformed packing (5), spacer (6), washer (7), and lip seal (8) from bore of end housing (3). Throw away preformed packing and seal.

END OF TASK



TA 103701

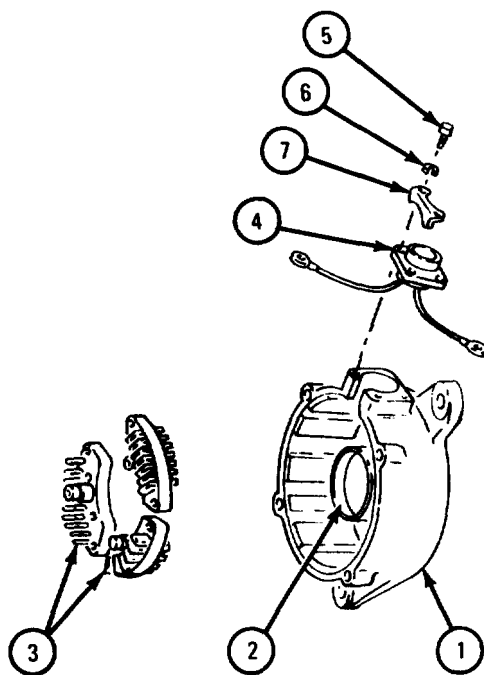
c. Cleaning. There are no special cleaning procedures needed. Refer to cleaning procedures given in para 1-3.

d. Inspection and Repair.

FRAME 1

1. Check that drive end housing (1) has no cracks or breaks. If end housing is damaged, generator is nonrepairable.
2. Measure bearing bore (2) of drive end housing (1). Bore must be 2.4412 to 2.4407 inches. If bore is not within given limits, generator is nonrepairable.
3. Check that rectifier mounts (3) are not cracked or broken and that they have no damaged threads.
4. Check that connector (4) has no damage, stripped threads, or loose or frayed wiring. If connector is damaged, generator is nonrepairable.
5. Check that screws (5) and washers (6) do not have damaged heads and that they are not broken. If parts are damaged, get new ones.
6. Check that terminal cover (7) is not cracked or broken. If terminal cover is damaged, get a new one.

GO TO FRAME 2



TA 103702

FRAME 2

CAUTION

Do not use a battery or test lamp to make a continuity test. Reverse battery connection will burn out diodes instantly.

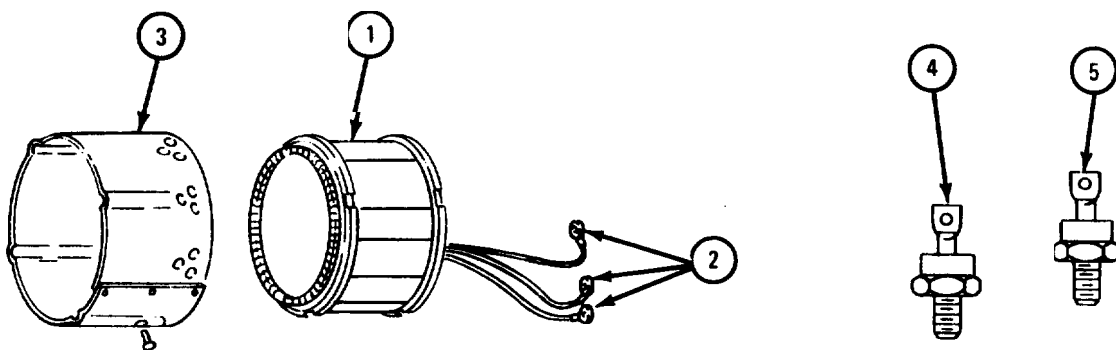
1. Check stator (1) for continuity using multimeter. Touch test probe of multimeter to each pair of stator leads (2). If there is not continuity between all three stator leads, generator is not repairable.
2. Check that stator shroud (3) is not cracked or broken. If shroud is damaged, generator is not repairable.

NOTE

On ohmmeters that use one 1 1/2-volt dry cell, low resistance readings will be approximately 20 to 30 ohms. On ohmmeters that use a 3-volt dry cell, low resistance readings will be approximately 10 to 15 ohms.

3. Using multimeter, check three positive rectifiers (4) by touching positive test probe of multimeter to base of rectifier and negative test probe to top of rectifier. Multimeter must show low resistance. If multimeter does not show low resistance, get a new rectifier.
4. Using multimeter, check three negative rectifiers (5) by touching positive test probe of multimeter to base of rectifier and negative test probe to the top of rectifier. Multimeter must show low resistance. If multimeter does not show low resistance, get a new rectifier.

GO TO FRAME 3



TA 103703

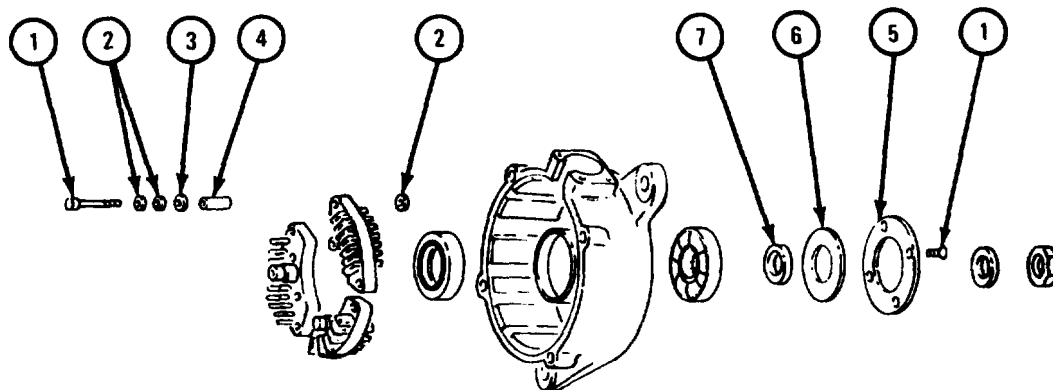
FRAME 3

NOTE

If any part is damaged, generator is nonrepairable.

1. Check that all screws (1), washers (2), insulating washers (3), and insulating sleeves (4) are not broken or worn and that they have no damaged-heads or stripped threads.
2. Check that bearing retainer (5), washer (6), and spacer (7) are not cracked or broken.

GO TO FRAME 4



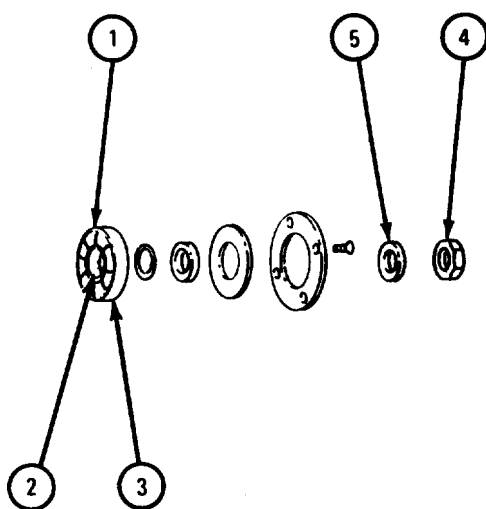
NOTE: CHECK ONLY THOSE PARTS WHICH ARE CALLED OUT IN THIS FRAME. PARTS WITHOUT CALLOUTS ARE SHOWN ONLY FOR REFERENCE PURPOSES OR ARE CHECKED IN ANOTHER FRAME.

TA 103704

FRAME 4

1. Measure inside diameter of bearing (1). Inside diameter (2) must be 0.9847 to 0.9844 inches. If bearing is not within given limits, get a new bearing.
2. Measure outside diameter of bearing (1). Outside diameter (3) must be 2.4412 to 2.4407 inches. If bearing is not within given limits, get a new bearing.
3. Check that bearing (1) is not damaged. Refer to TM 9-214.
4. Check that nut (4) and washer (5) are not stripped, worn or damaged. If parts are damaged, get new ones.

END OF TASK



**NOTE: CHECK ONLY THOSE PARTS WHICH
ARE CALLED OUT IN THIS FRAME.
PARTS WITHOUT CALLOUTS ARE
SHOWN ONLY FOR REFERENCE
PURPOSES OR ARE CHECKED IN
ANOTHER FRAME.**

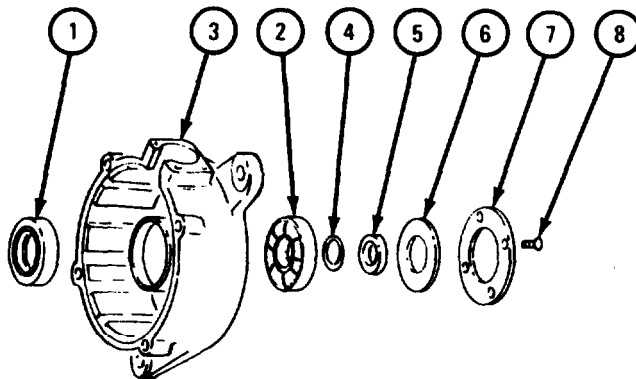
TA 103705

e. Assembly.

FRAME 1

1. Press seal (1) and bearing (2) into bore of drive end housing (3).
2. Place preformed packing (4) in spacer (5) and put spacer to bearing (2).
3. Put washer (6) and bearing retainer (7) on drive end housing (3) and put in four screws (8).

GO TO FRAME 2



TA103706

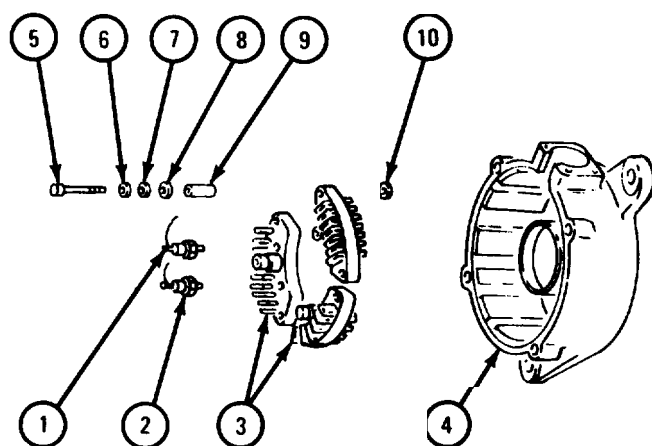
FRAME 2

NOTE

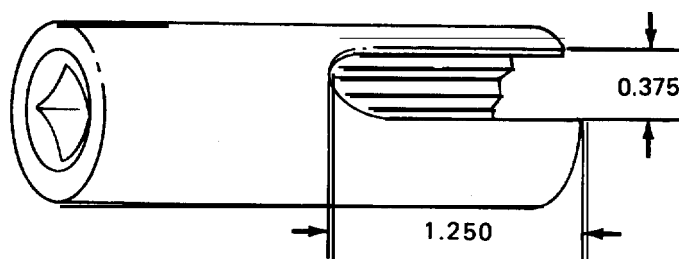
Have machine shop make rectifier installing tool.
See figure 2-11.

1. Using rectifier installing tool, put in three rectifiers (1) and three rectifiers (2).
2. Put rectifier mounts (3) into housing (4). Put in six screws (5), guard washers (6), spring tension washers (7), insulation washers (8), sleeves (9) and guard washers (10).

GO TO FRAME 3



TA 103707



NOTES:

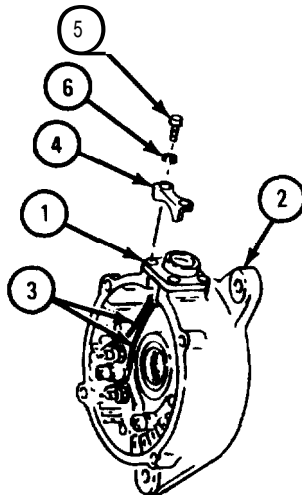
1. ALL DIMENSIONS SHOWN ARE IN INCHES
2. MATERIAL: 1-3/4 INCH, 1/2 INCH DRIVE SOCKET

TA 103708

Figure 2-11. Rectifier Installing Tool Fabrication Instructions

FRAME 3

1. Place connector (1) on housing (2).
 2. Solder diode leads (3) to connector (1).
 3. Put on cover (4) and put in four screws (5) with four lockwashers (6).
- GO TO FRAME 4



-TA 103709

FRAME 4

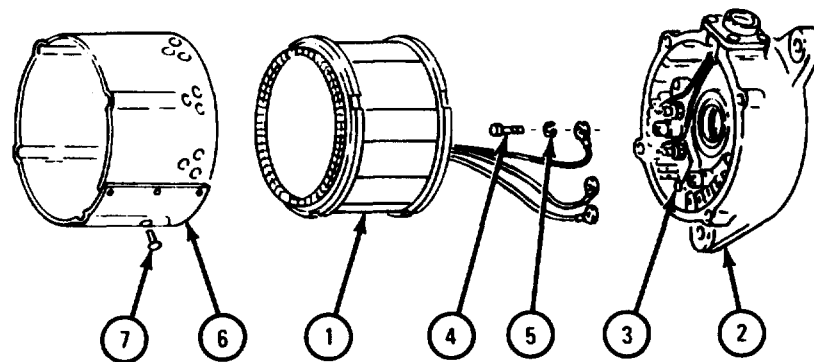
1. Put stator (1) to drive end housing (2).
2. Put stator (1) leads to rectifier mounts as tagged. Put in three screws (4) and lockwashers (5). Take off tags.
3. Place shroud (6) over stator (1) and put in three rivets (7).

NOTE

Follow-on Maintenance Action Required:

Replace fan, end bell, and rotor assembly. Refer to para 2-21.

END OF TASK



TA 103710

Section VIII. TESTS AND ADJUSTMENTS

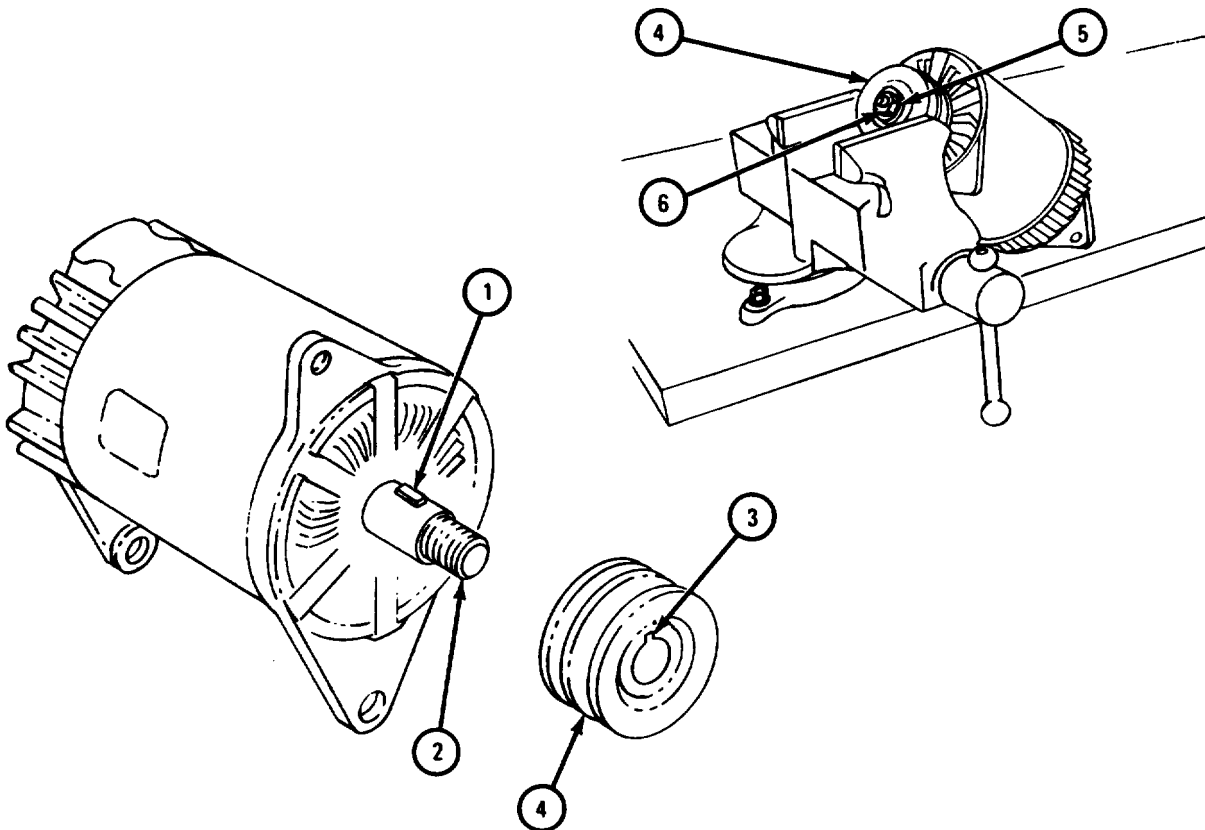
2-23. TEST SETUP USING SUN MODEL (NSN 4910-00-767-0218) TEST STAND.

a. Mounting Generator On Test Stand.

FRAME 1

1. Place woodruff key (1) in shaft (2).
2. Aline pulley keyway (3) with key (1). Push pulley (4) onto shaft (2).
3. Put washer (5) on shaft (2) and put on nut (6).
4. Place pulley (4) in vise with soft-jaw caps. Using torque wrench, tighten nut (6) to 40 to 50 pound-feet.
5. Take pulley (4) out of vise.

GO TO FRAME 2

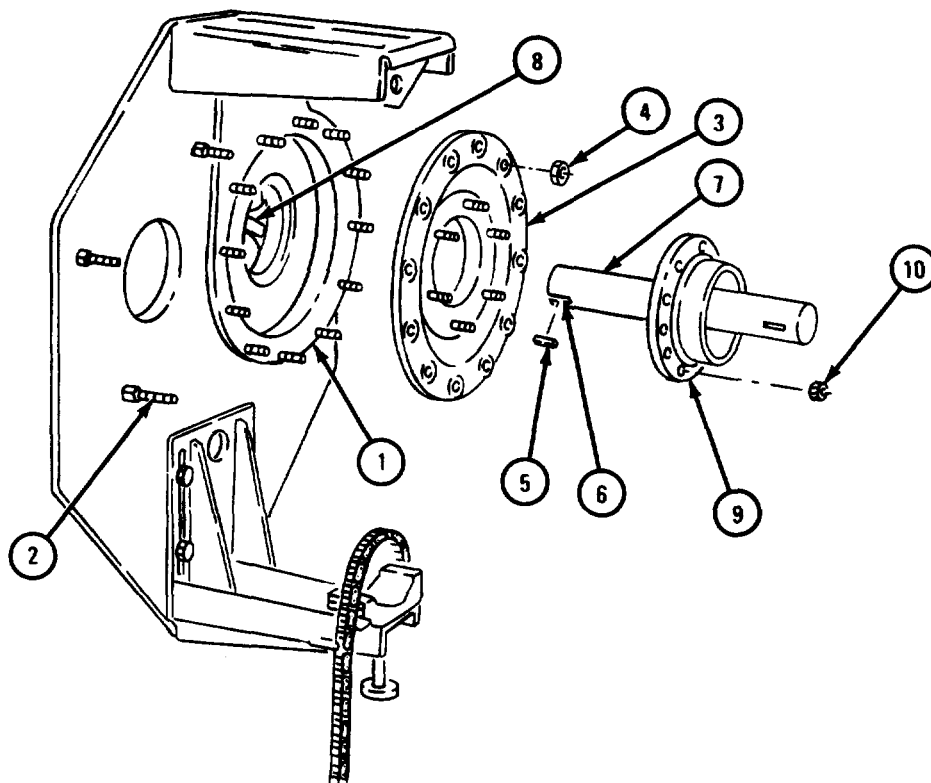


TA 103527

FRAME 2

1. Swing pivot arm (1) to the right and align three studs (2) with stud holes in pivot arm. Let studs go into stud holes in pivot arm.
2. Put mounting flange adapter (3) over studs in pivot arm (1). Put on 12 nuts (4).
3. Put key (5) in keyway (6) of pulley shaft (7). Slide pulley shaft onto driving head (8). Slide pulley adapter (9) onto studs of adapter flange (3).
4. Put on six nuts (10).

GO TO FRAME 3

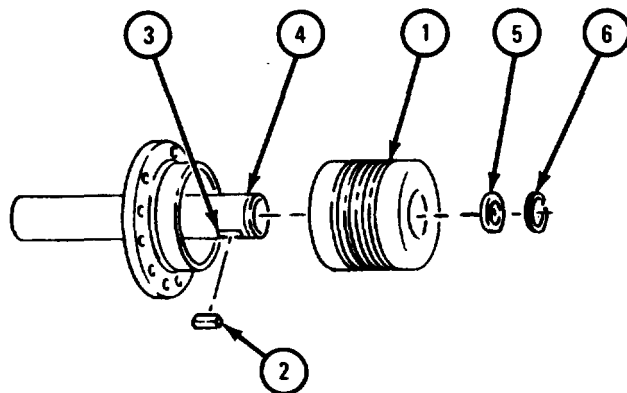


TA 118943

FRAME 3

1. Choose the right size pulley (1) to match pulley on generator to be mounted. Refer to TM 9-4910-485-12.
2. Put key (2) in keyway (3) of pulley shaft (4). Slide pulley (1) over shaft.
3. Put on retaining washer (5) and retainer (6).

GO TO FRAME 4



TA 088545

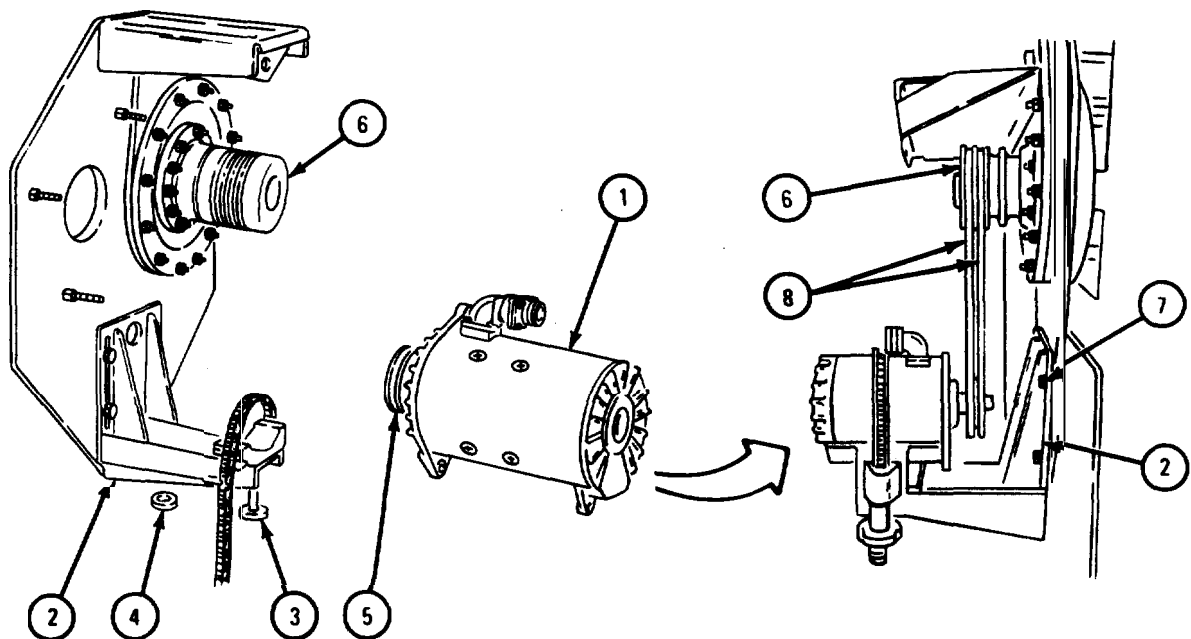
FRAME 4

CAUTION

When putting generator (1) in chain vise, do not clamp vise over nameplates and raised surfaces. Generator can come loose and damage equipment.

1. Put generator (1) on mounting bracket (2) and tighten chain vise (3).
2. Loosen four nuts (4) and align generator pulley (5) with test stand pulley (6). Tighten four nuts.
3. Loosen four nuts (7) behind generator mounting bracket (2). Lift mounting bracket and place belts (8) on test stand pulley (6) and generator pulley (5).
4. Take up slack on belts (8) and tighten four nuts (7).

END OF TASK



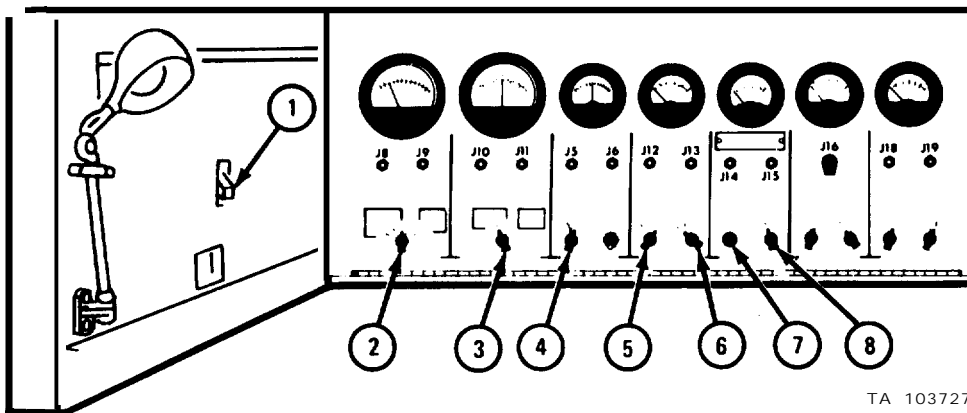
TA 118944

b. Test Stand Base Setting.

FRAME 1 I

1. Set MAIN POWER switch (1) to OFF position.
2. Set DC AMMETER LOAD AND STARTER selector (2) to 500 amperes.
3. Set DC AMMETER FIELD AND BATTERY selector (3) to 30 amperes.
4. Set MILLIVOLT METER RANGE selector (4) to 9 volts.
5. Set DC VOLTMETER RANGE selector (5) to 50 volts.
6. Set DC VOLTMETER CIRCUIT selector (6) to RECT /GEN position.
7. Turn TACHOMETER PULLEY CALIBRATION control (7) to the left.
8. Set TACHOMETER CIRCUIT selector (8) to DIRECT DRIVE position.

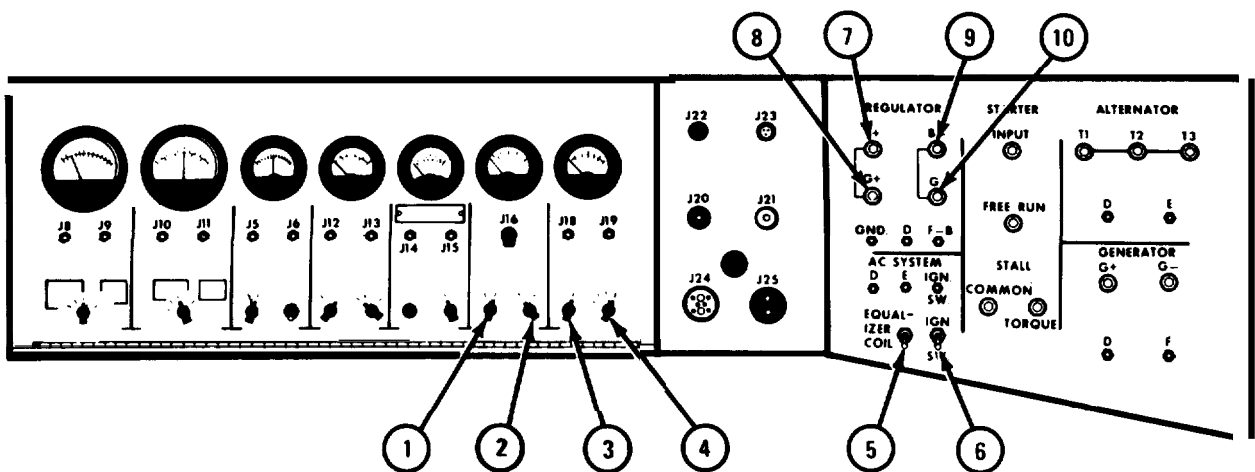
GO TO FRAME 2



FRAME 2 1

1. Set AC AMMETER RANGE selector (1) to highest range.
2. Set AC AMMETER PHASE selector (2) to PHASE A position.
3. Set AC VOLTMETER RANGE selector (3) to 50V position.
4. Set AC VOLTMETER CIRCUIT selector (4) to OFF position.
5. Set EQUALIZER COIL switch (5) to OFF position.
6. Set IGNITION switch (6) to OFF position.
7. Hook up bus bar from B+ (7) to G+ (8) terminals of REGULATOR binding post.
8. Hook up a bar bar from B- (9) to G- (10) terminals of REGULATOR binding post.

GO TO FRAME 3

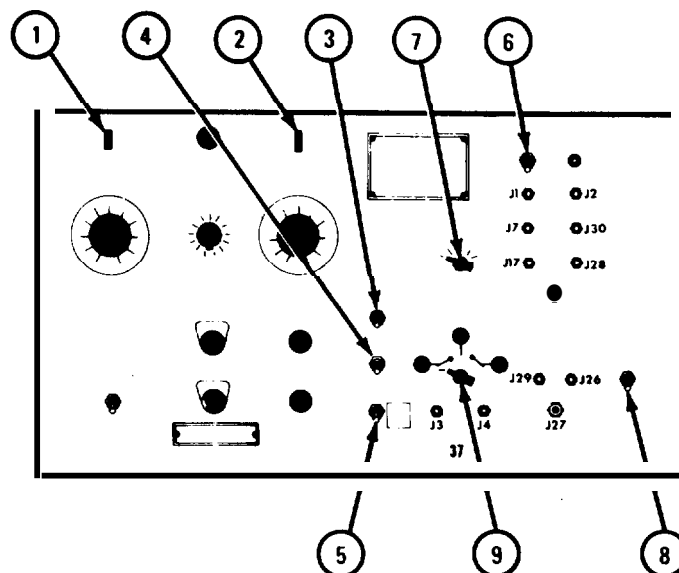


TA 088527

FRAME 3

1. Set POWER SUPPLY switch (1) to OFF position.
2. Set BATTERY CHARGER switch (2) to OFF position.
3. Set EXTERNAL FIELD switch (3) to OFF position.
4. Set FIELD COMMON switch (4) to NEGATIVE position.
5. Set FIELD CIRCUIT switch (5) to REGULATOR position.
6. Set RELAY LAMP switch (6) to OFF position.
7. Set REGULATOR LOAD RESISTOR selector (7) to OFF position.
8. Set GROUND POLARITY switch (8) to negative (-) position.
9. Set BATTERY selector (9) to OFF position.

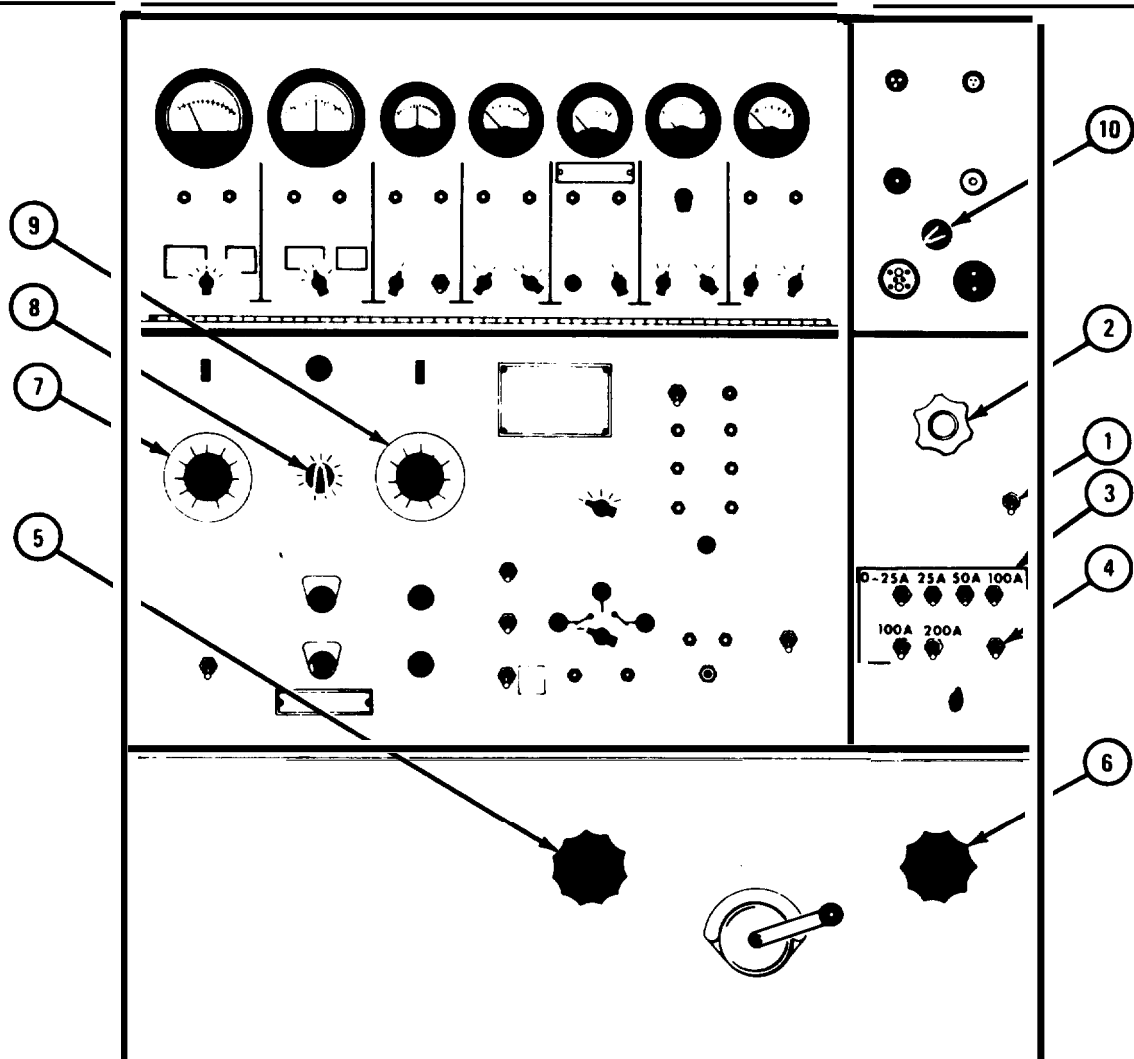
GO TO FRAME 4



TA 088534

FRAME 4

1. Set STARTER TEST switch (1) to OFF position.
 2. Turn STARTER VOLTAGE knob (2) to the left.
 3. Set all LOAD BANK switch (3) to OFF position.
 4. Set MASTER LOAD switch (4) to OFF position.
 5. Turn FIELD CURRENT RHEOSTAT (5) to the left.
 6. Turn VARIABLE LOAD (6) to the left.
 7. Turn POWER SUPPLY (7) to the left.
 8. Set CHARGE TIMER (8) to OFF position.
 9. Turn BATTERY CHARGER control (9) to the left.
 10. Turn 400A CONTROL BOX VOLTAGE ADJUST knob (10) to the left.
- END OF TASK



TA 103716

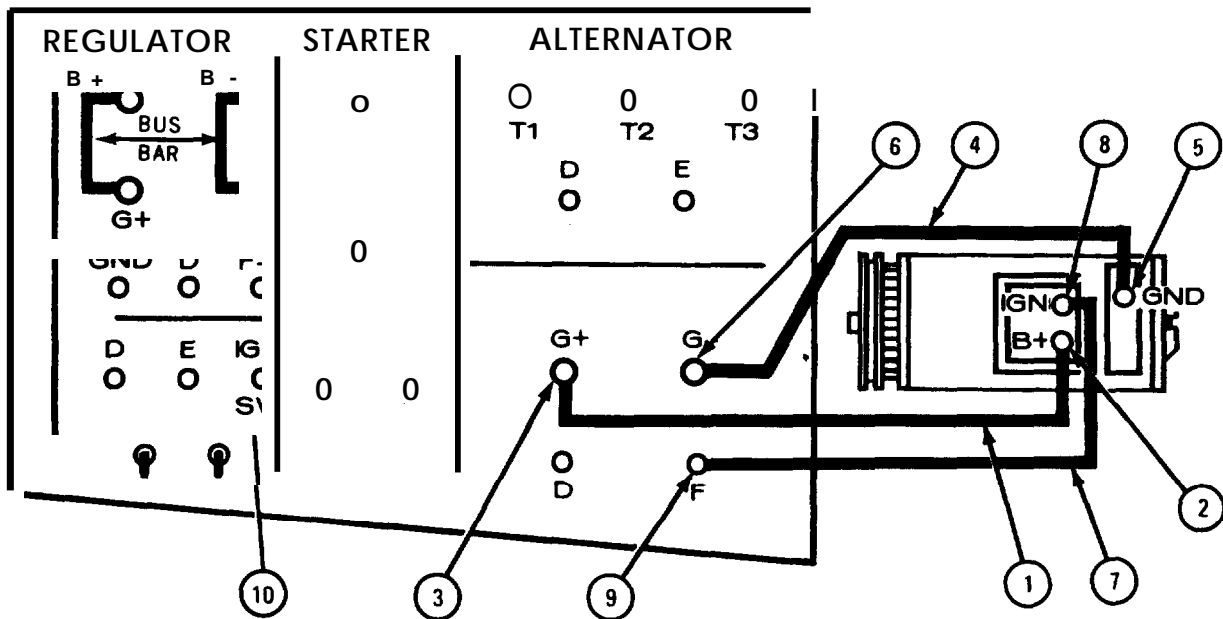
c. Harness Connections.

(1) 60-ampere generator.

FRAME 1

1. Hook up test lead (1) from generator B+ terminal (2) to G+ terminal (3) of generator binding post on test stand.
2. Hook up test lead (4) from generator ground (5) to G- terminal (6) of generator binding post on test stand.
3. Hook up test lead (7) from generator ignition lead (8) to F terminal (9) of generator binding post on test stand.
4. Hook up test lead (10) between F-B terminal and IGN-SW terminal as shown.

END OF TASK

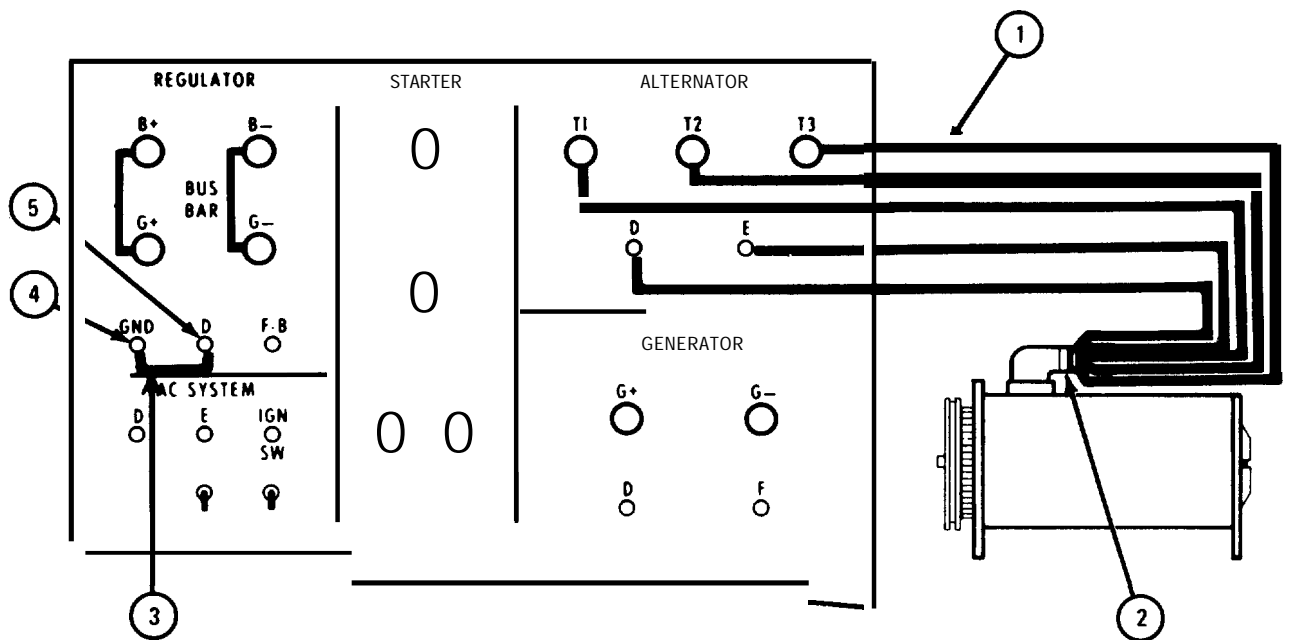


TA 103648

(2) 100-ampere generator.

FRAME 1

1. Hook up special purpose cable (1) to generator connector (2) and hook up each lead of special purpose cable to alternator terminal and binding post on test stand as labeled.
 2. Hook up a bus bar (3) to GND terminal (4) and D terminal (5).
- GO TO FRAME 2

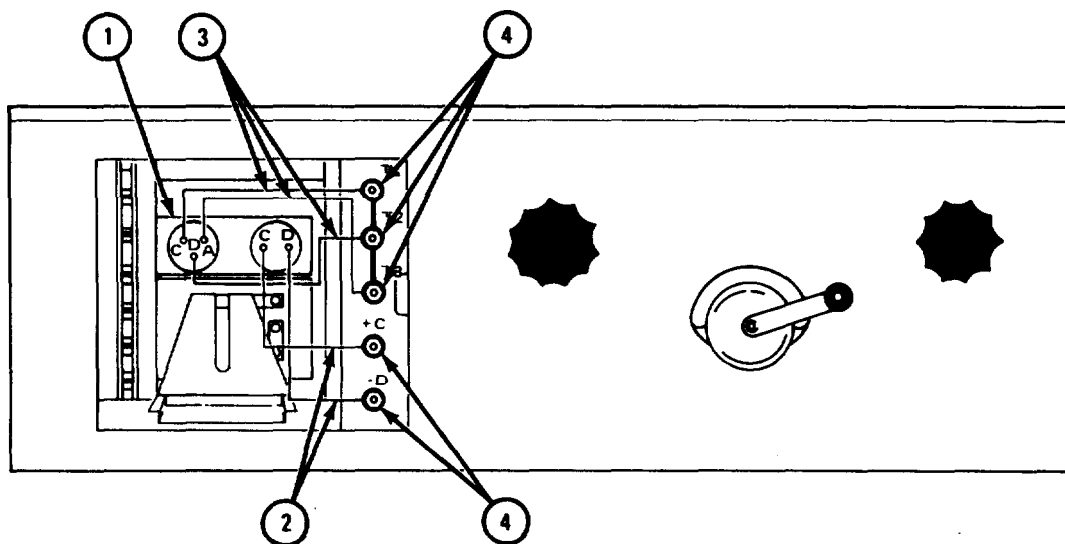


TA 103717

FRAME 2

1. Hookup rectifier (1) using two special purpose cables (2 and 3). Put leads onto rectifier terminals (4) on test stand as labeled.
2. Put other ends of special purpose cables (2 and 3) into receptacles in rectifier (1).

END OF TASK



TA 103718

d. Tachometer Calibration Information. Find the speed of generator using the following formula:

$$\frac{2000 \times (Y)}{X} = Z$$

(X) = Diameter of generator pulley.

(Y) = Diameter of test stand drive pulley.

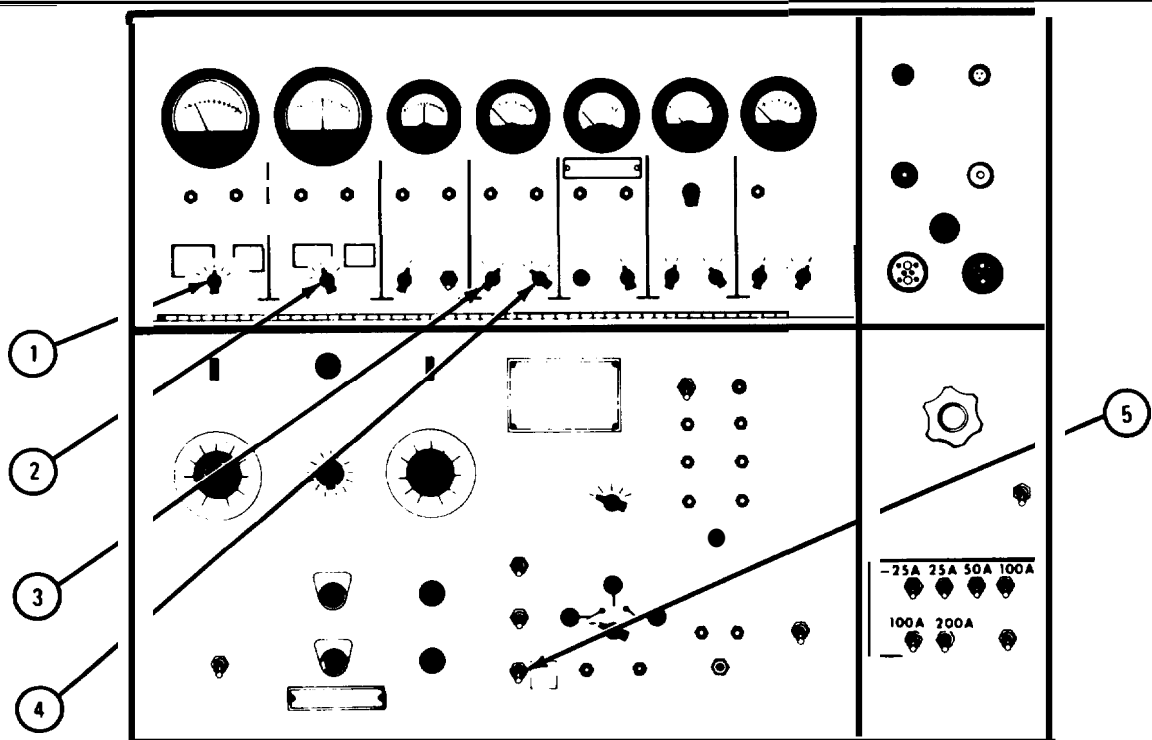
(Z) = Speed of generator.

e. Preliminary Test Setting.

(1) 60-ampere generator.

FRAME 1

1. Place DC AMMETER LOAD AND STARTER selector (1) in 150A position.
 2. Set DC AMMETER FIELD AND BATTERY CHARGER selector (2) in 5A position.
 3. Make sure that DC VOLTMETER RANGE selector (3) is in 50V position.
 4. Make sure that DC VOLTMETER CIRCUIT selector (4) is in RECT /GEN position.
 5. Set FIELD CIRCUIT switch (5) to REGULATOR position.
- GO TO FRAME 2

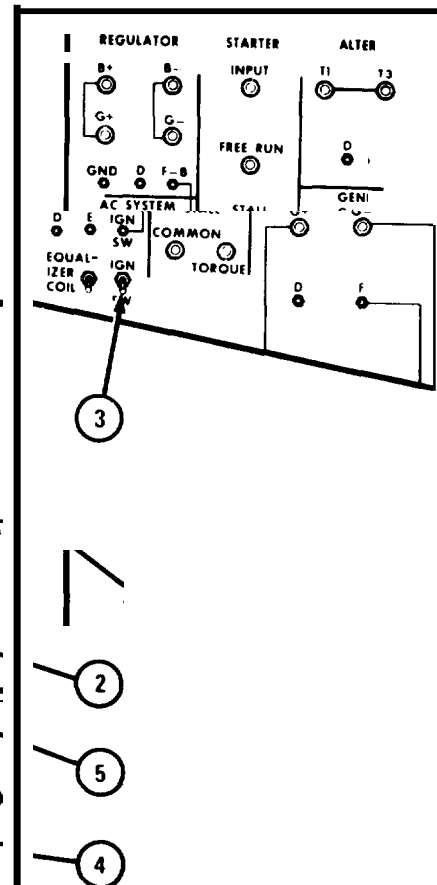
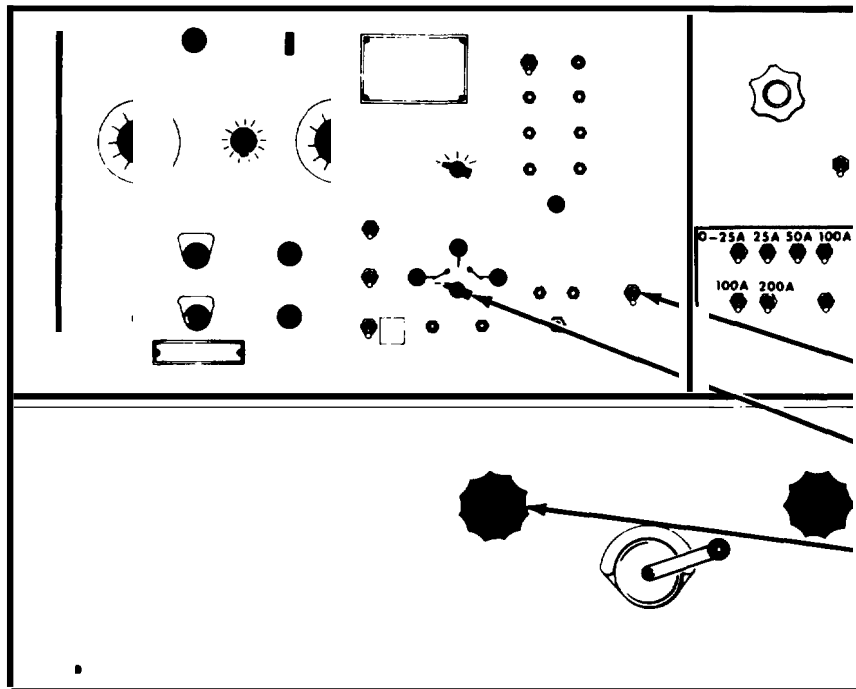


TA 103719

FRAME 2

1. Make sure that all LOAD BANK switches (1) are in OFF position.
2. Make sure that GROUND POLARITY switch (2) is in negative (-) position.
3. Make sure that IGNITION switch (3) is in OFF position.
4. Turn FIELD CURRENT control (4) all the way to the left.
5. Set BATTERY SELECTOR (5) to OFF position.

END OF TASK



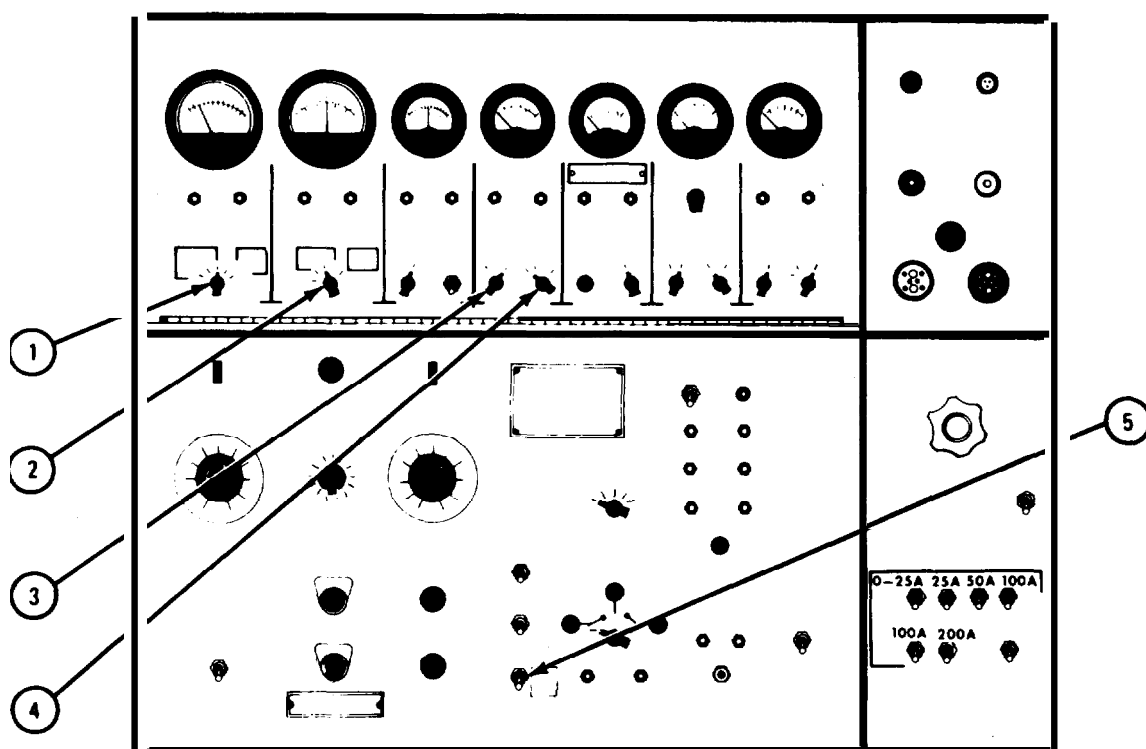
TA 103720

(2) 100-ampere generator.

FRAME 1

1. Place DC AMMETER LOAD AND STARTER selector (1) in 150A position.
2. Set DC AMMETER FIELD AND BATTERY CHARGER selector (2) in 15A position.
3. Make sure that DC VOLTMETER RANGE selector (3) is in 50V position.
4. Make sure that DC VOLTMETER RANGE selector (2) is in RECT /GEN position.
5. Set FIELD CIRCUIT switch (5) to MANUAL position.

GO TO FRAME 2

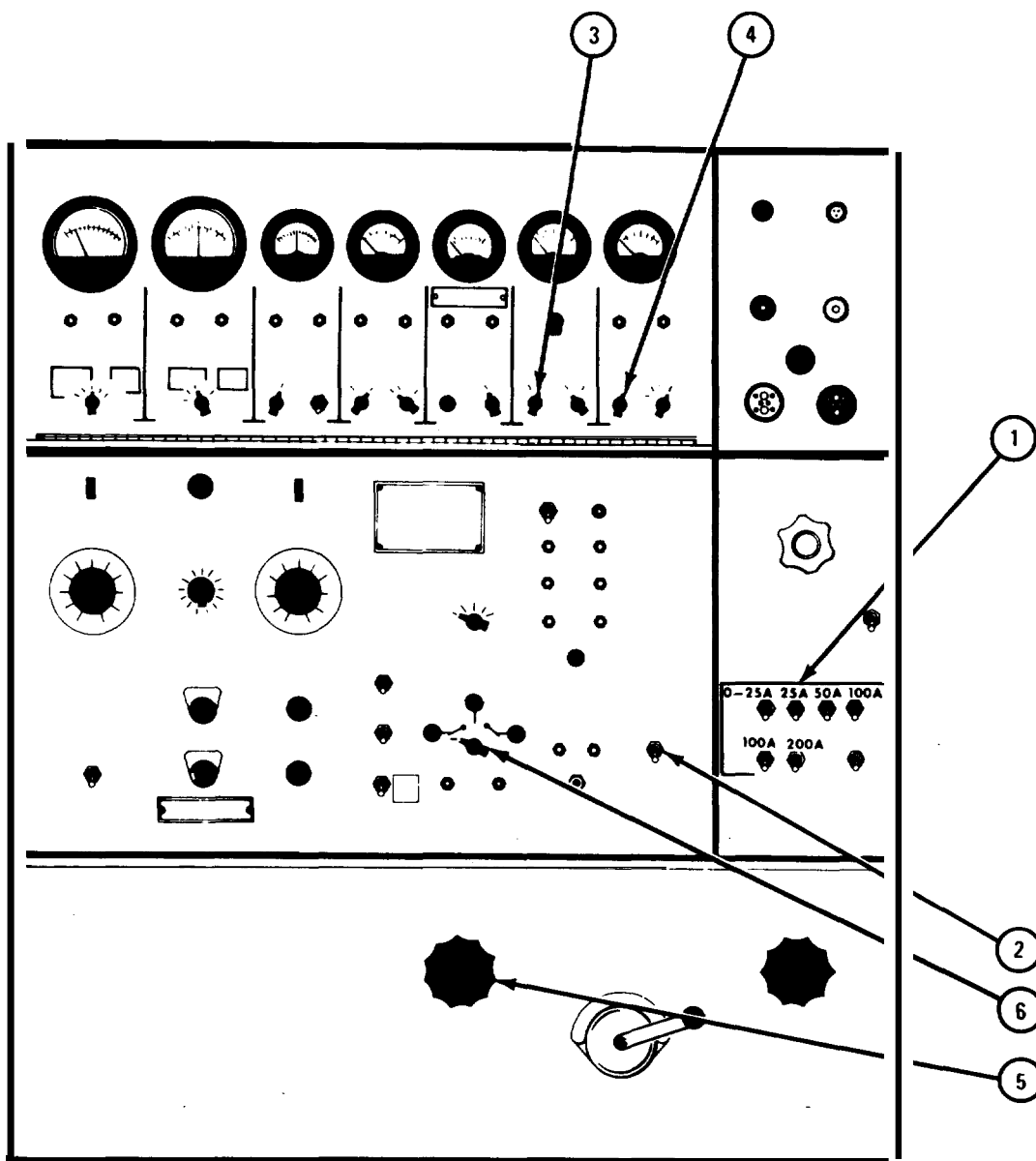


TA 103719

FRAME 2 1

1. Make sure that all LOAD BANK switches (1) are in OFF position.
2. Make sure that GROUND POLARITY switch (2) is in negative (-) position.
3. Place AC AMMETER RANGE selector (3) in 100A position.
4. Make sure that AC VOLTMETER RANGE selector (4) is in 50V position.
5. Make sure that FIELD CURRENT control (5) is turned all the way to the left.
6. Make sure that BATTERY selector (6) is in OFF position.

END OF TASK



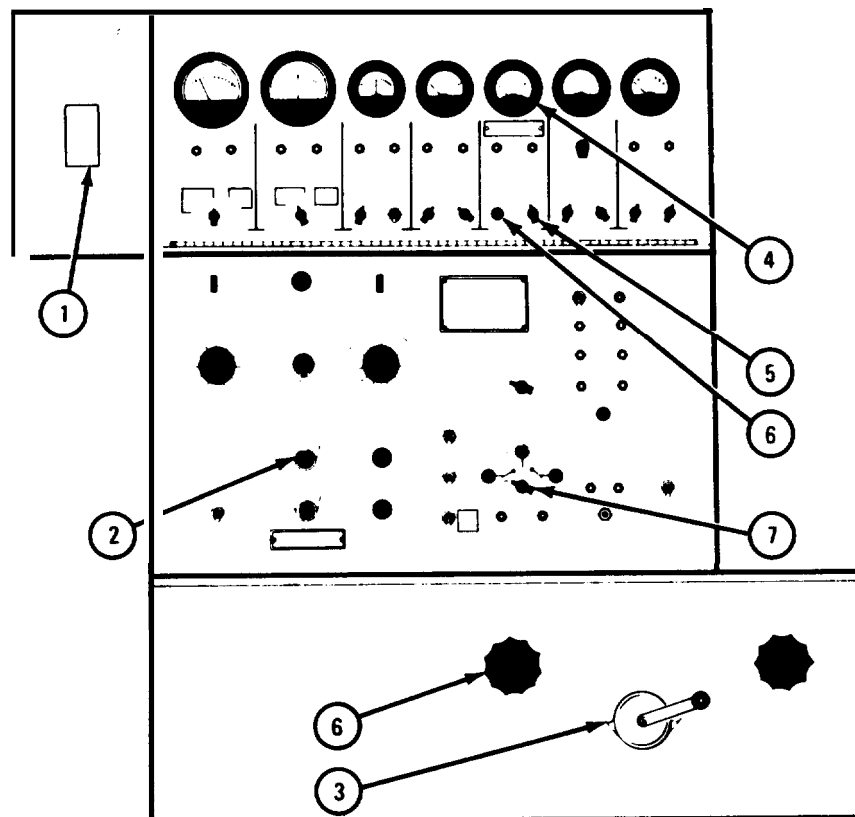
TA 103721

2-24. TEST PROCEDURE.

a. 60-Ampere Generator.**FRAME 1**

1. Set MAIN POWER switch (1) to ON position.
2. Press START button (2) and hold it for three seconds. Turn DRIVE SPEED control (3) to the left until TACHOMETER (4) reads 2000 RPM.
3. Turn TACHOMETER SELECTOR switch (5) to CAL position and turn CAL control (6) to right until TACHOMETER (4) reads generator speed. Refer to para 2-23d.
4. Turn DRIVE SPEED control (3) until TACHOMETER (4) reads 2000 RPM.
5. Turn FIELD CURRENT control (6) to the right.
6. Turn BATTERY selector (7) to 24V position.

GO TO FRAME 2



TA 103722

FRAME 2

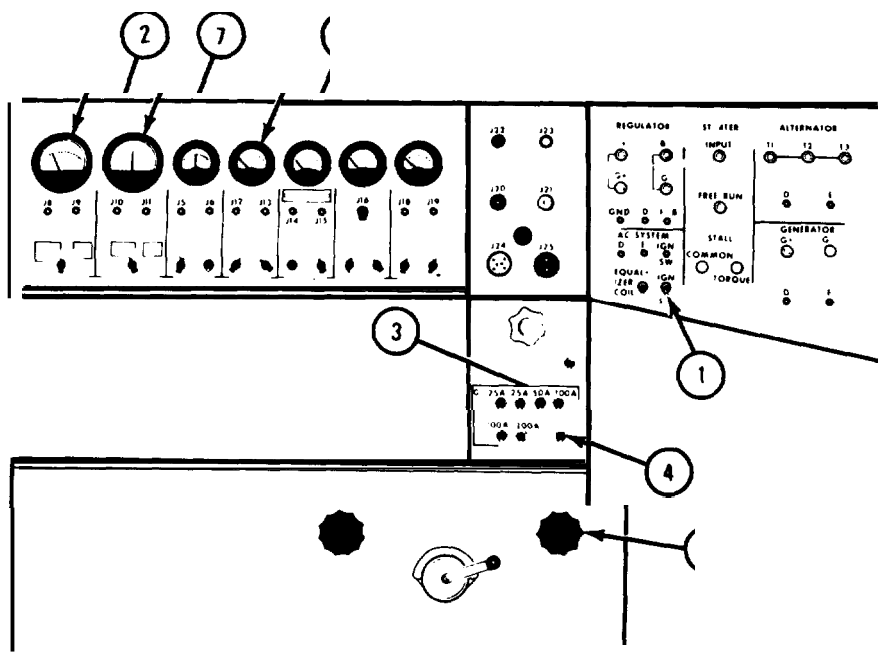
1. Turn on IGNITION switch (1) and note reading on DC LOAD AND STARTER AMMETER (2) .

NOTE

DC LOAD AND STARTER AMMETER will read according to the state of charge of test stand batteries. As batteries become charged, reading will drop. Let test stand run for about 5 minutes before going on with test.

2. If DC LOAD AND STARTER AMMETER (2) reads over 10 amperes, turn on 25A and 0-25A switches on LOAD BANK (3).
3. If DC LOAD AND STARTER AMMETER (2) reads under 10 amperes, turn on 50A and 0-25A switches on LOAD BANK (3).
4. Set MASTER LOAD switch (4) to ON position.
5. Turn LOAD CURRENT CONTROL (5) slowly to the right until DC LOAD AND STARTER AMMETER (2) reads 60 amperes. At this point, DC VOLTMETER (6) must read about 28 volts and DC FIELD AND STARTER AMMETER (7) must read one ampere or less.
6. If DC FIELD AND BATTERY AMMETER (7) reads more than one ampere, generator is nonrepairable.

END OF TASK

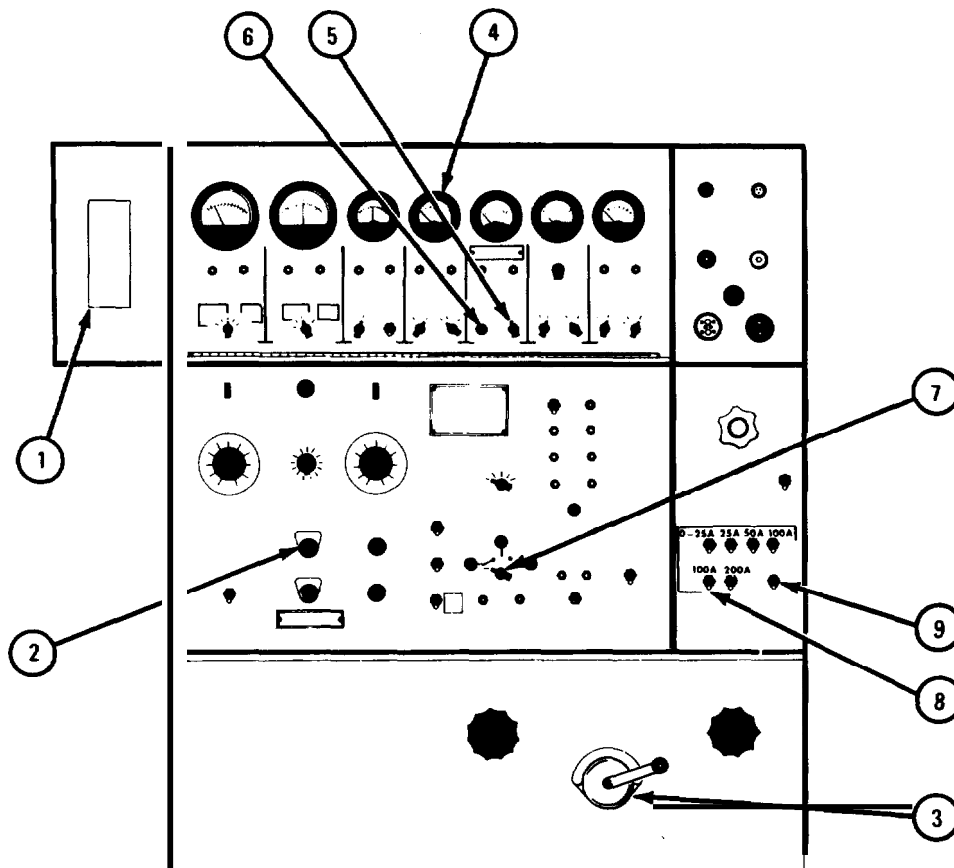


TA 103723

b. 100-Ampere Generator.**FRAME 1**

1. Set MAIN POWER switch (1) to ON position.
2. Press START button (2) and hold it for three seconds. Turn DRIVE SPEED control (3) to right until TACHOMETER (4) reads 2000 RPM.
3. Turn TACHOMETER SELECTOR switch (5) to CAL position and turn TACHOMETER CONTROL (6) to right until TACHOMETER (4) reads generator speed. Refer to para 2-23d.
4. Turn DRIVE SPEED control (3) until TACHOMETER (4) reads 2000 RPM.
5. Place BATTERY selector (7) in 24V position.
6. Set 100A LOAD switch (8) and MASTER LOAD (9) to ON position.

GO TO FRAME 2



TA 103724

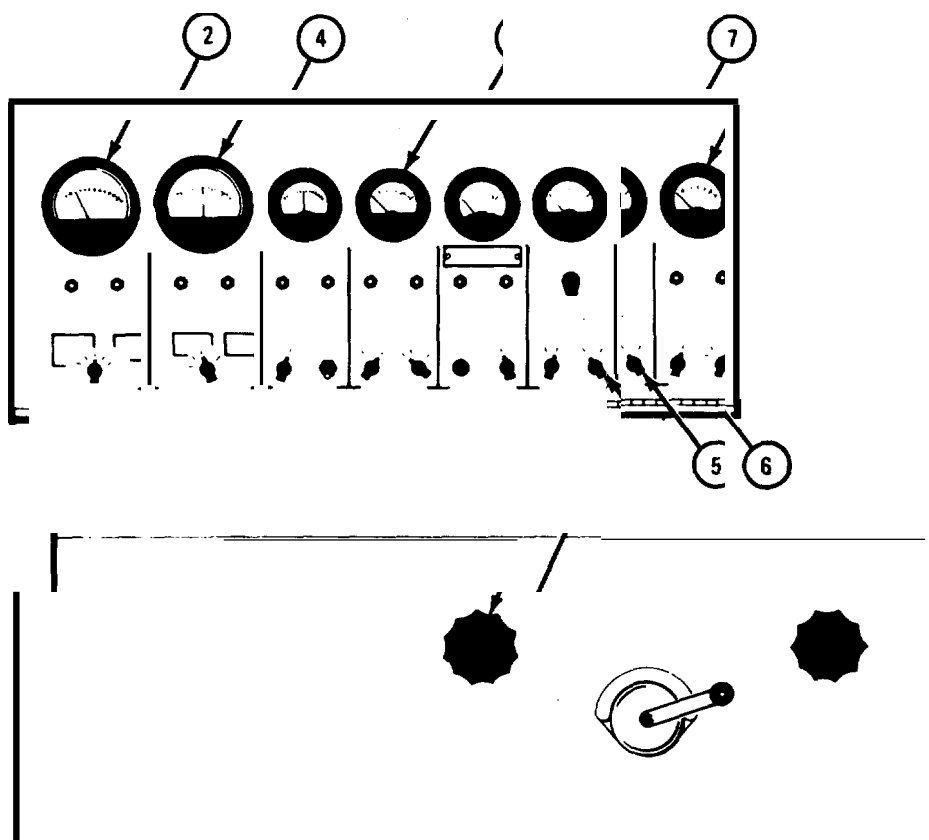
FRAME 2

CAUTION

Never let voltage on DC VOLTMETER (3) be more than 32 volts or ampere reading on DC FIELD AND BATTERY CHARGER AMMETER (4) be more than 15 amperes or rectifier may be damaged.

1. Turn FIELD CURRENT control (1) to the right until DC LOAD AND STARTER AMMETER (2) reads 100 amperes and DC VOLTMETER (3) reads 68 volts. DC FIELD AND BATTERY CHARGER AMMETER (4) should read 9 to 11 amperes.
2. Turn AC AMMETER PHASE selector (5) through A, B, and C positions. AC AMMETER should read about the same in all three positions.
3. Turn AC VOLTMETER selector (6) through T1-T2, T1-T3, and T2-T3 positions. AC VOLTMETER (7) should read about the same in all three positions.
4. If DC FIELD AND BATTERY AMMETER (4) reads less than 9 amperes or more than 12 amperes, get a new regulator.

END OF TASK



TA 103725

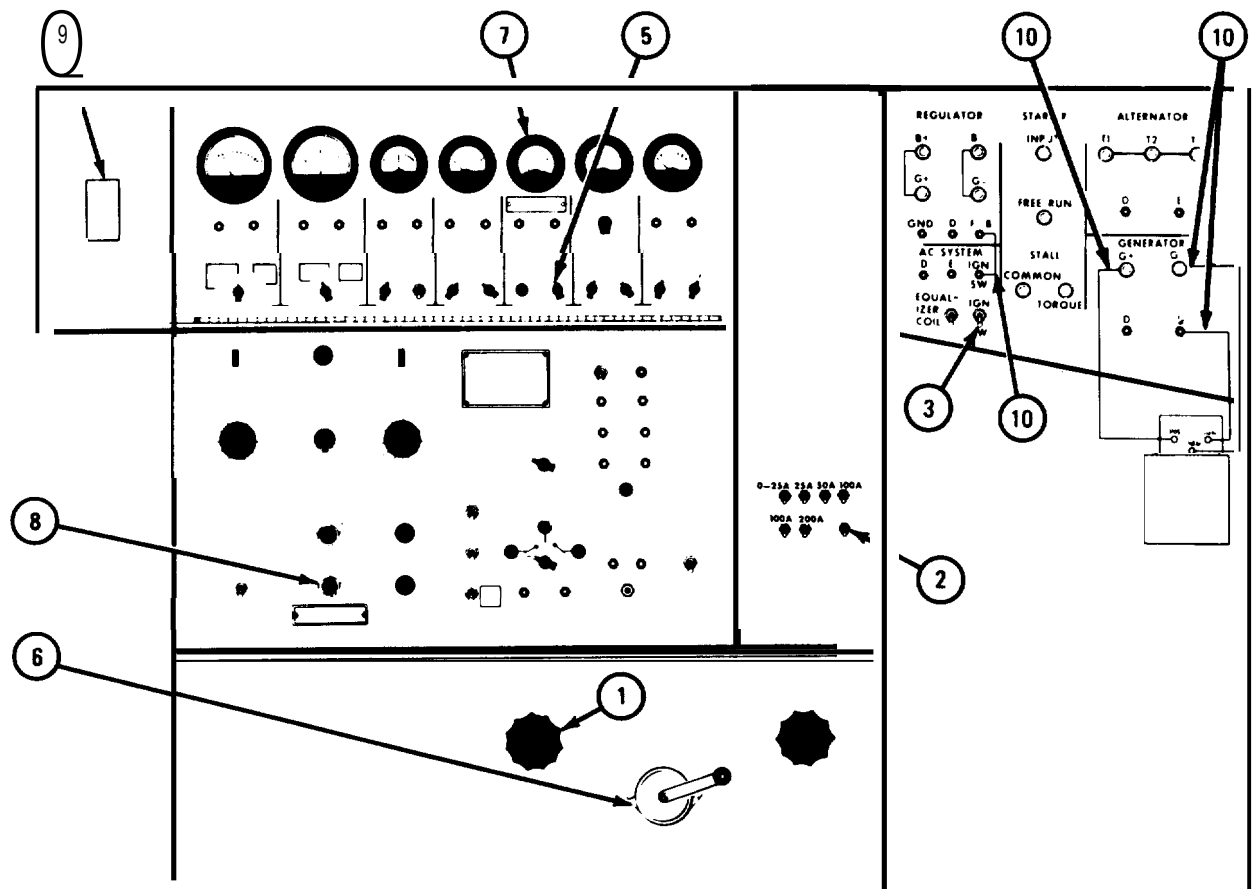
2-25. TEST SHUTDOWN.

a. Switch Positioning (60 Amperes).

FRAME 1

1. Turn FIELD CURRENT rheostat (1) all the way to the left.
2. Turn MASTER LOAD switch (2) to OFF position.
3. Turn IGNITION switch (3) to OFF position.
4. Turn BATTERY selector (4) to OFF position.
5. Turn TACHOMETER CIRCUIT selector (5) to DIRECT DRIVE position.
6. Turn DRIVE SPEED control (6) to the right until TACHOMETER (7) reads 1,000 RPM.
7. Press STOP button (8) and turn MAIN POWER switch (9) to OFF position.
8. Set all switches and controls to their base settings. Refer to para 2-23b.
9. Take off test cables (10).

END OF TASK



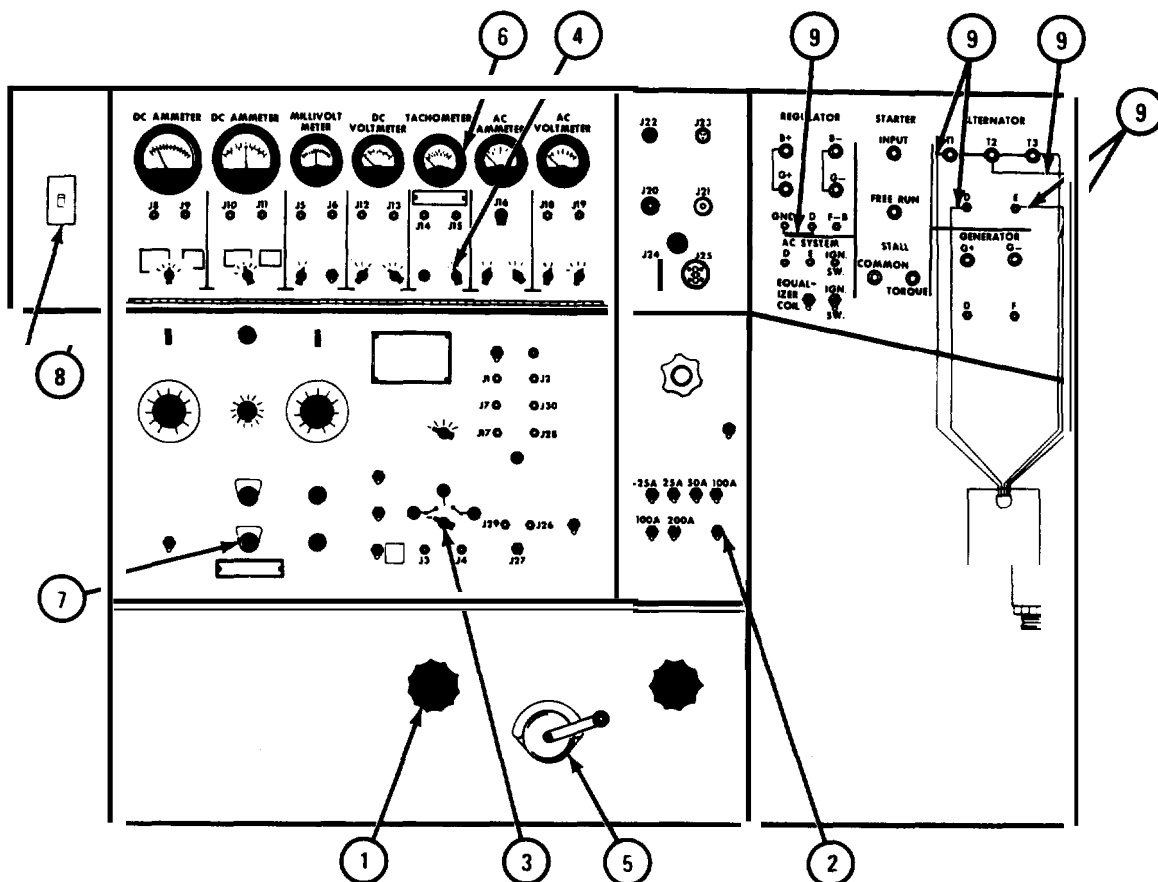
TA 103726

b. Switch Positioning (100 Ampere)

FRAME 1

1. Turn FIELD CURRENT rheostat (1) fully to the left.
2. Turn MASTER LOAD switch (2) to OFF position.
3. Turn BATTERY selector (3) to OFF position.
4. Turn TACHOMETER SELECTOR switch (4) to DIRECT DRIVE position.
5. Turn DRIVE SPEED CONTROL (5) to the right until TACHOMETER (6) reads 1,000 RPM.
6. Press STOP button (7) .
7. Set MAIN POWER switch (8) to OFF position.
8. Set all switches and controls to their base settings. Refer to para 2-23b.
- 9* Take off test cables (9).

END OF TASK



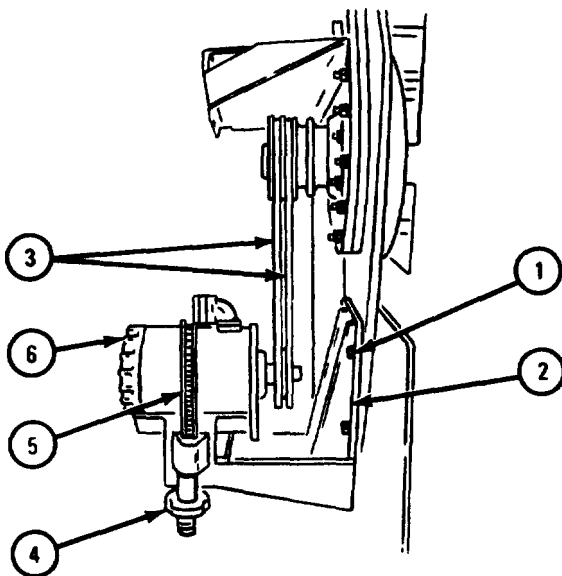
TA 118945

c. Removal of Generator from Test Stand.

FRAME 1

1. Loosen four nuts (1). Lift mounting bracket (2) and take off belts (3). Tighten four nuts.
2. Loosen chain vise grip (4) and take chain (5) off generator (6).
3. Take off generator (6).

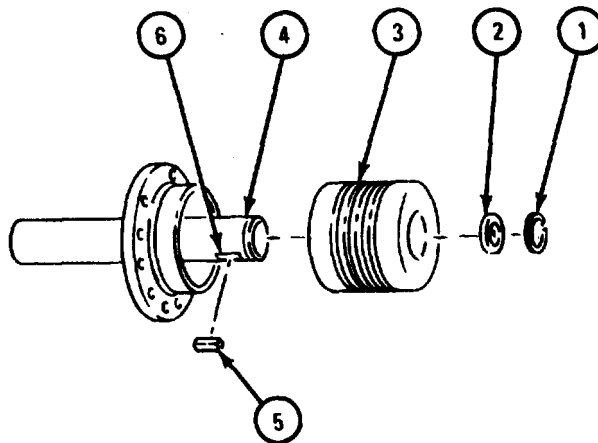
GO TO FRAME 2



TA 118946

FRAME 2

1. Take out pulley retainer (1) and washer (2).
 2. Slide pulley (3) off pulley shaft (4).
 3. Take key (5) out of keyway (6) in pulley shaft (4).
- GO TO FRAME 3

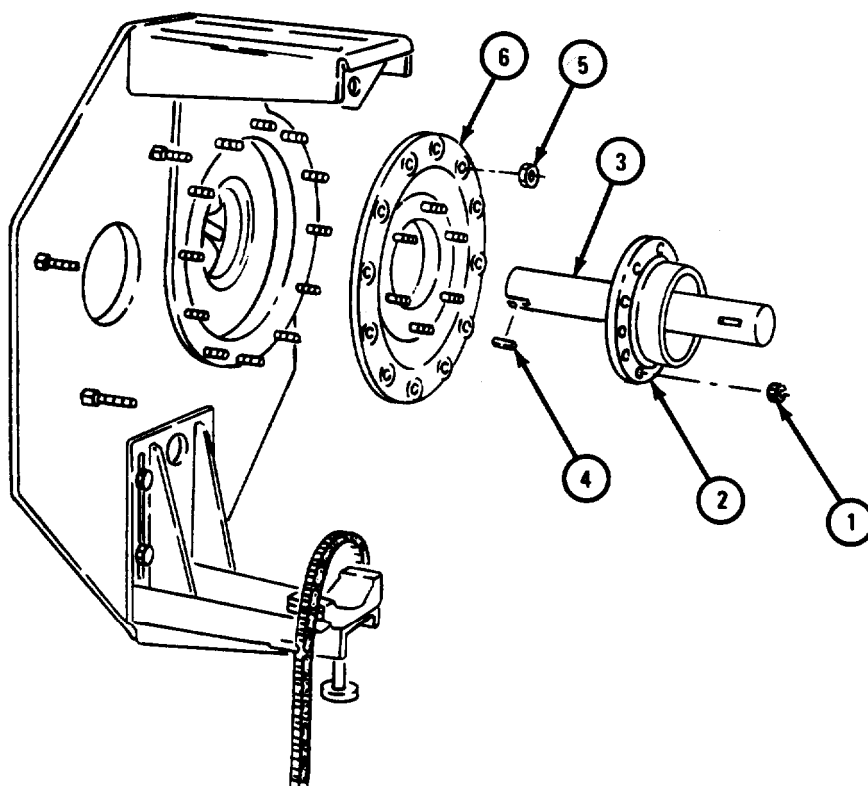


TA 102024

FRAME 3

1. Take off six nuts (1) from pulley shaft adapter (2). Pull out pulley shaft and pulley assembly (3). Take out key (4).
2. Take off 12 nuts (5) from mounting flange adapter (6). Take off mounting flange adapter.

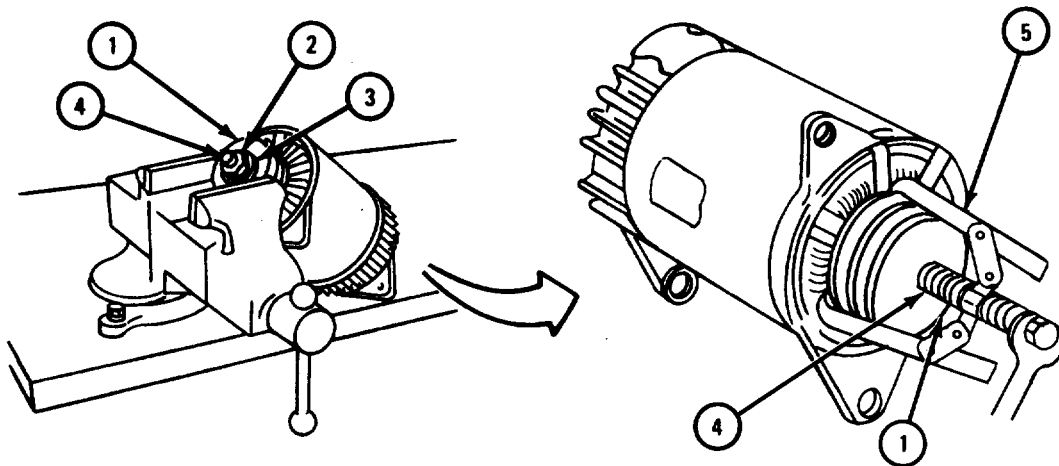
GO TO FRAME 4



TA 118947

FRAME 4

1. Place generator pulley (1) in vise with soft jaw caps as shown.
 2. Take off nut (2) and flat washer (3) from shaft (4).
 3. Take pulley (1) out of vise.
 4. Pull pulley (1) off shaft (4) using puller (5),
- END OF TASK



TA 049083

APPENDIX A

REFERENCES

A-1. GENERAL.

This appendix contains a list of references which appear in this technical manual.

A-2. PUBLICATION INDEXES .

Index of Technical Publications DA Pam 310-4

A-3. FORMS.

Quality Deficiency Report SF 368

Recommended Changes to Equipment
Publications DA Form 2028-2

A-4. TECHNICAL MANUALS.

Inspection, Care and Maintenance of
Antifriction Bearings TM 9-214

Direct Support and General Support
Maintenance Repair Parts and Special Tools
Lists (Including Depot Maintenance Repair Parts
and Special Tools): Generator, Engine Accessory
(Alternating Current) Prestolite Model AMA-5102UT
(FSN 2920-90\$2483) Leece-Neville Models 3002AC
and 3002AD (FSN 2920-909-2483) , 5504AA and
5504AB (FSN 2920-475-1446), 2184AC (FSN
2920-782-1955) 5300GP (FSN 2920-818- 8635). TM 9-2920-225-34P

Operator and Organizational Maintenance
Manual (Including Repair Parts and Special
Tools List): Test Stand, Automotive Generator,
Alternator and Starter, Floor Mounted, 10 to 50V
500 Amp, DC and 25 to 50V, 100 to 400 Amp, AC,
Testing Ranges W/8000 to 12000 RPM, 22 1/2 HP,
220/440V, 60 Cycle, 3 Phase, Dual Head Vari-
Drive Assembly (Sun Electric Corporation Model
AGT-9 and AGT-9A (FSN 4910-767-0218) TM 9-4910-485-12

The Army Maintenance Management
System (TAMMS) TM 38-750

Painting Instructions for Field Use TM 43-0139

Equipment Improvement Report and Maintenance
Summary for TARCUM Equipment TM 43-0143

A-5. TECHNICAL BULLETINS.

Equipment Improvement Report and
Maintenance Digest: Tank and Automotive
Equipment TB 43-000139-1, -2,
-3, -4

By Order of the Secretaries of the Army and the Air Force:

E. C. MEYER
General, United States Army
Chief of Staff

Official:

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Major General, United States Army
The Adjutant General

LEW ALLEN, JR., General, USAF
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Director of Administration

Distribution:

To be distributed in accordance with DA Form 12-38, Direct and General Support Maintenance requirements for 1/4 Ton Truck, Utility, and 1/4 Ton Truck, Ambulance: M151.



THEN... JOT DOWN THE
DOPE ABOUT IT ON THIS
FORM, CAREFULLY TEAR IT
OUT, FOLD IT AND DROP IT
IN THE MAIL!

SOMETHING WRONG WITH THIS PUBLICATION?

FROM: (PRINT YOUR UNIT'S COMPLETE ADDRESS)

CDR, 1st Bn, 65th ADA
Attn: SP4 Jane Idone
Key West, FL 33040

DATE SENT

Date sent in

PUBLICATION NUMBER

TM 9-2920-225-34

PUBLICATION DATE

20 Feb 81

PUBLICATION TITLE

ENGINE ACCESSORY GENERATOR, DIR.
GEN. SUPPORT MAINT.

BE EXACT PIN-POINT WHERE IT IS

| PAGE NO | PARA- GRAPH | FIGURE NO | TABLE NO |
|------------|----------------|--------------|-------------|
| 2-36 | | 2-2 | |
| 2-60 | 2-10 b | | |
| 2-176 | | 2-7 | |

IN THIS SPACE TELL WHAT IS WRONG
AND WHAT SHOULD BE DONE ABOUT IT:

Figure gives inside diameter of tubing as
0.70 inches. Should read "0.790 inch."

FRAME 1, step 2 reads "Unsolder two
splice connections (2)." Should read
'Unsolder three splice connections (2)."

Item 3 is listed as "Outside diameter
of shaft." Should read "Outside diameter
of shaft at fan end bearing seat."

SAMPLE

PRINTED NAME GRADE OR TITLE AND TELEPHONE NUMBER

SP4 Jane Idone Autovon 222-2224

SIGN HERE

Jane Idone

RECOMMENDED CHANGES TO EQUIPMENT TECHNICAL PUBLICATIONS



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DATE SENT

PUBLICATION NUMBER

TM 9-2920-225-34

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PUBLICATION TITLE

ENGINE ACCESSORY GENERATOR,
DIR. & GEN. SUPPORT MAINTENANCE

BE EXACT PIN-POINT WHERE IT IS

PAGE
NO

PARA-
GRAPH

FIGURE
NO

TABLE
NO

IN THIS SPACE TELL WHAT IS WRONG
AND WHAT SHOULD BE DONE ABOUT IT:

PRINTED NAME GRADE OR TITLE AND TELEPHONE NUMBER

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FILL IN YOUR
UNIT'S ADDRESS

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DEPARTMENT OF THE ARMY

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DEPARTMENT OF THE ARMY
DOD 314



COMMANDER
U.S. ARMY TANK — AUTOMOTIVE
MATERIEL READINESS COMMAND
ATTN: DRSTA-MB
WARREN, MI 48090

TEAR ALONG PERFORATED LINE

THE METRIC SYSTEM AND EQUIVALENTS

LINEAR MEASURE

1 Centimeter = 10 Millimeters = 0.01 meters = 0.3937 Inch
 1 Meter = 100 Centimeters = 1000 Millimeters = 39.37 Inches
 1 Kilometer = 1000 Meters = 0.621 Miles

WEIGHTS

1 Gram = 0.001 Kilograms = 1000 Milligrams = 0.035 Ounces
 1 Kilogram = 1000 Grams = 2.2 Lb
 1 Metric Ton = 1000 Kilograms = 1 Megagram = 1.1 Short Tons

LIQUID MEASURE

1 Milliliter = 0.001 Liters = 0.0338 Fluid Ounces
 1 Liter = 1000 Milliliters = 33.82 Fluid Ounces

SQUARE MEASURE

1 Sq Centimeter = 100 Sq Millimeters = 0.155 Sq Inches
 1 Sq Meter = 10,000 Sq Centimeters = 10.76 Sq Feet
 1 Sq Kilometer = 1,020,000 Sq Meters = 0.386 Sq Miles

CUBIC MEASURE

1 Cu Centimeter = 1000 Cu Millimeters = 0.06 Cu Inches
 1 Cu Meter = 1,000,000 C. Centimeters = 35.31 C. Feet

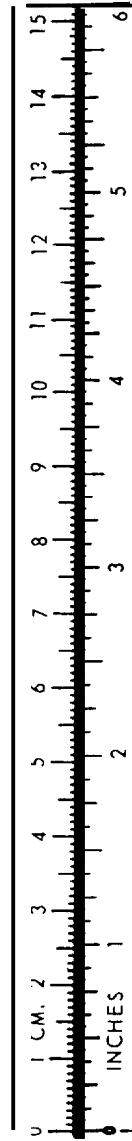
TEMPERATURE

$5/9 (^{\circ}\text{F} - 32) = ^{\circ}\text{C}$
 212° Fahrenheit is equivalent to 100 Celsius
 90 Fahrenheit is equivalent to 32.2° Celsius
 32° Fahrenheit is equivalent to 0 Celsius
 $9/5 \text{ C} + 32 = \text{F}^{\circ}$

APPROXIMATE CONVERSION FACTORS

| <u>TO CHANGE</u> | <u>TO</u> | <u>MULTIPLY BY</u> |
|-------------------------|----------------------|--------------------|
| Inches. | Centimeters. | 2.540 |
| Feet. | Meters | 0.305 |
| Yards | Meters | 0.914 |
| Miles | Kilometers | 1.609 |
| Square Inches | Square Centimeters | 6.451 |
| Square Feet | Square Meters. | 0.093 |
| Square Yards | Square Meters. | 0.836 |
| Square Miles | Square Kilometers. | 2.590 |
| Acres | Square Hectometers | 0.405 |
| Cubic Feet. | Cubic Meters | 0.028 |
| Cubic Yards | Cubic Meters | 0.765 |
| Fluid Ounces. | Milliliters. | 29.573 |
| Pints | Liters | 0.473 |
| Quarts. | Liters | 0.946 |
| Gallons | Liters | 3.785 |
| Ounces. | Grams. | 28.349 |
| Pounds | Kilograms. | 0.454 |
| Short Tons. | Metric Tons. | 0.907 |
| Pound-Feet. | Newton-Meters. | 1.356 |
| Pounds per Square Inch. | Kilopascals. | 6.895 |
| Miles per Gallon. | Kilometers per Liter | 0.425 |
| Miles per Hour. | Kilometers per Hour. | 1.609 |

| <u>TO CHANGE</u> | <u>TO</u> | <u>MULTIPLY BY</u> |
|-----------------------|------------------------|--------------------|
| Centimeters | Inches | 0.394 |
| Meters. | Feet | 3.280 |
| Meters. | Yards. | 1.094 |
| Kilometers. | Miles. | 0.621 |
| Square Centimeters. | Square Inches. | 0.155 |
| Square Meters | Square Feet. | 10.764 |
| Square Meters | Square Yards | 1.196 |
| Square Kilometers | Square Miles | 0.386 |
| Square Hectometers. | Acres. | 2.471 |
| Cubic Meters. | Cubic Feet | 35.315 |
| Cubic Meters. | Cubic Yards. | 1.308 |
| Milliliters | Fluid Ounces | 0.034 |
| Liters. | Pints. | 2.113 |
| Liters. | Quarts | 1.057 |
| Liters. | Gallons. | 0.264 |
| Grams | Ounces | 0.035 |
| Kilograms | Pounds | 2.205 |
| Metric Tons | Short Tons | 1.102 |
| Newton-Meters | Pound-Feet | 0.738 |
| Kilopascals | Pounds per Square Inch | 0.145 |
| Kilometers per Liter. | Miles per Gallon | 2.354 |
| Kilometers per Hour | Miles per Hour | 0.621 |



TA089991

